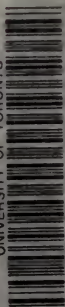


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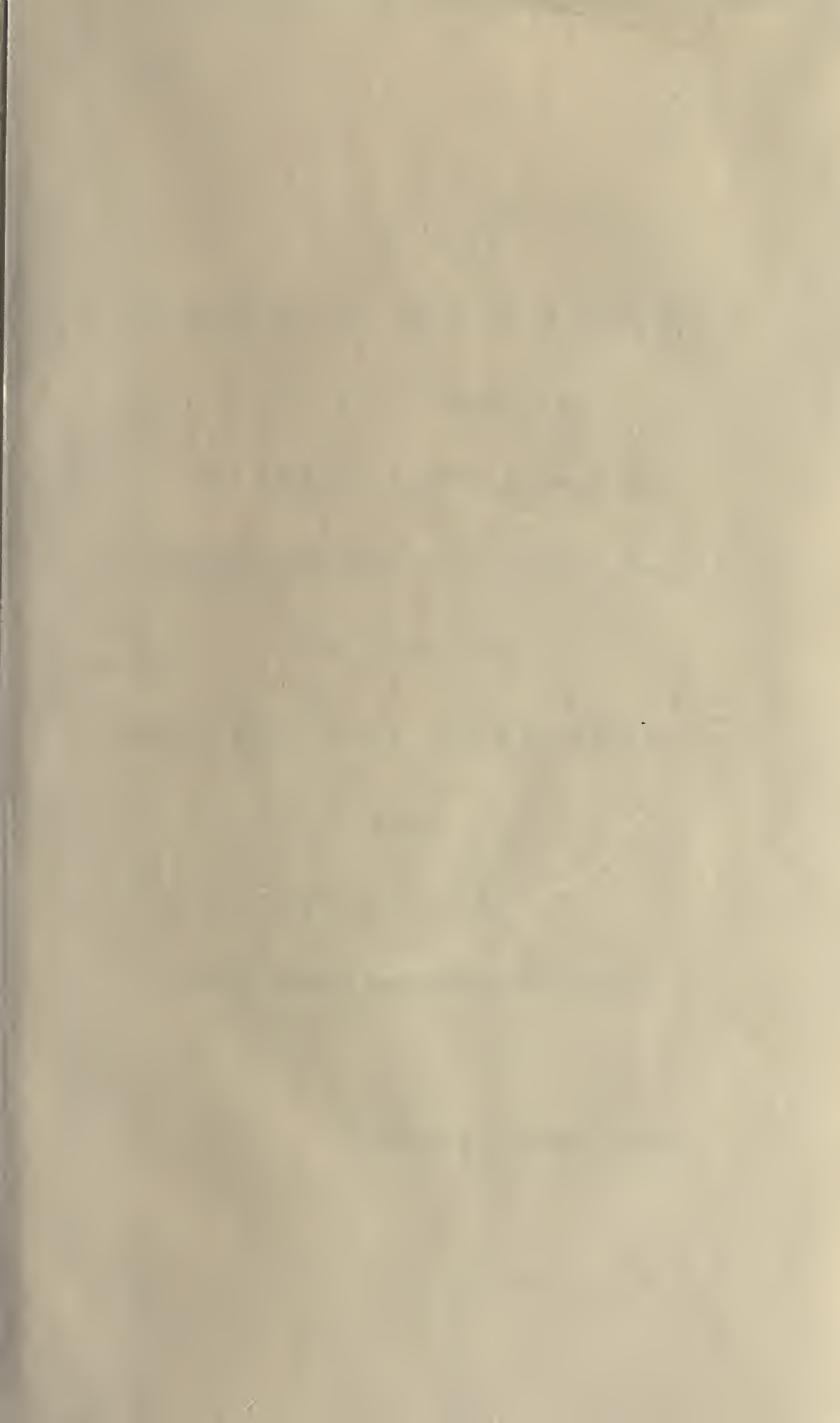
106 - pop.

155

161 - agric.

187

355 - madrid
to Valladolid





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TO, THE
EARL of WYCOMBE,

AS MOST COMPETENT
TO JUDGE OF THEIR MERIT,
THESE SHEETS ARE DEDICATED

IN TOKEN OF
ESTEEM AND GRATITUDE,

BY HIS
LORDSHIP'S

SINCERE FRIEND AND DEVOTED SERVANT.

JOSEPH TOWNSEND.



~~HSP~~
~~1786~~

1

A
J O U R N E Y
T H R O U G H
S P A I N

IN THE YEARS 1786 AND 1787;

WITH PARTICULAR ATTENTION

TO THE

AGRICULTURE, MANUFACTURES, COMMERCE,
POPULATION, TAXES, AND REVENUE

O F · T H A T C O U N T R Y;

A N D

R E M A R K S

IN PASSING THROUGH

A P A R T O F F R A N C E.

475-431
-36.48

By JOSEPH TOWNSEND, A.M.
RECTOR OF PEWSEY, WILTS;
AND LATE OF CLARE-HALL, CAMBRIDGE.

IN THREE VOLUMES. — VOL. I.

L O N D O N:
PRINTED FOR C. DILLY, IN THE POULTRY.
M, DCC. XCI.

DP

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1791

V. 1

E R R A T A.

Page. line.

- 22. 24. *for* bring back, *lege* reduce.
- 37. 10. assisted at, *lege* was present at.
- 46. 15. intercepted, *lege* interfectcd.
- 117. 11. and much wanted, &c. *lege* such an institution is much
wanted in England.
- 136. 19. comprehended, *lege* comprehending.
- 185. 11. algaroba, *lege* algarrobo.
- 201. 6. sand clay, *lege* sand and clay.
- 202. 10. nitre of sea-salt, *lege* nitre and sea-salt.
- 219. 18. mine, *lege* mines.
- 253. 21. Antonia, *lege* Antonio.
- 301. 11. Borico, *lege* Borrico.
- 308. 20. Dominico, Greco, *lege* Dominico Greco.
- 334. 24. back, is held, *lege* back or held up.
- 398. 10. aguarina, *lege* aguerina.

NB: all corrected

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V O L. I.

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DIRECTIONS.

D I R E C T I O N S
TO THE
I T I N E R A N T I N S P A I N.

TO travel commodiously in Spain, a man should have a good constitution, two good servants, letters of credit for the principal cities, and a proper introduction to the best families, both of the native inhabitants and of strangers settled in the country.

The language will be easily acquired.

His servants should be a Spaniard and a Swiss, of which, one should be sufficiently acquainted with the art of cooking, and with the superior art of providing for the journey; which implies a perfect knowledge of the country through which he is to pass, that he may secure a stock of wine, bread, and meat, in places where these excel, and

such a stock as may be sufficient to carry him through the districts in which these are not to be obtained. For himself, his servants and his baggage, he should purchase three strong mules, able to support the load which is to be put upon them. In his baggage he should have sheets, a mattress, a blanket and a quilt, a table-cloth, knives, forks, and spoons, with a copper vessel sufficiently capacious to boil his meat. This should be furnished with a cover and a lock. Each of the servants should have a gun slung by the side of his mule.

To travel as an œconomist in Spain, a man must be contented to take his chance for conveyance, and either go by the post, wherever it is established; or join with officers, going to their various stations; to hire a coach, or quietly resign himself to a calash, a calasine, a horse, a mule, or a *Borrico*. These last are the most convenient for the purpose of crossing the country, or of wandering among the mountains. If he is to traverse any district infested by banditti, it will be safe for him to go by the common carriers, in which case he will be mounted on a good mule, and

and take the place which would have been occupied by some bale of goods. Any one, who is fond of botany, for short excursions, will make choice of a *Borricon*. These are always to be had, when, as in some villages, neither horse nor mule are to be obtained. I have used this honourable appellation for the most patient of all animals, because I would not shock the delicacy of a young traveller, by telling him, at his first setting out, that he may sometimes find himself under the necessity of riding upon an ass. He must, however, know, for his consolation, that an ass does not appear so contemptible in Spain as in the colder regions of the north.

The best time for him to begin this expedition is in autumn, when he may go by Bayonne, Burgos, Valladolid, and Segovia, hastening to the court at St. Ildefonso. Here he is to procure letters for the chief cities in Spain. On these will depend the whole pleasure of his excursion. During the winter he may see all the south of Spain, Toledo, Cordova, Seville, Cadiz, Gibraltar, Malaga, Granada, Carthage,na,

Murcia, Alicant, Valencia, and Barcelona. Returning by Zaragoza to Aranjuez in the spring, he may follow the Merino flock to the mountains of the north, whilst the country, on which he has turned his back, is rendered unfit for travelling, by the dissolving heats, by want of provisions, and by malignant fevers. This season will be best employed in Gallicia, the Asturias, and the provinces of Biscay, taking Salamanca and Leon in the way.

Had I received such directions previous to my Spanish journey, I should have escaped a severe fit of illness, which was occasioned by the intensity of the summer's heat. In England, intermittents are commonly ascribed to marsh miasma, but in Spain their origin is attributed to the stroke of the mid-day sun; and I am inclined to think this may often be the genuine cause.

[8]

J O U R N E Y
F R O M
L O N D O N T O P A R I S.

I SET out from London January 30th, 1786, and crossing the channel in the night, landed the next day at Calais, from whence, proceeding in the diligence, I arrived early on the 3d of February at the hotel de Messageries at Paris. From Calais to the vicinity of Paris is hilly all the way, the distance is one hundred and seventy-seven miles. The country is open, mostly in tillage, and not well wooded; the soil is chiefly sand. Calais itself is in a plain, which is covered with pebbles. In the vicinity of Calais, the sand is light and apt to drive, but as you advance it becomes more firm, yet with hard rain it binds, and must be therefore uncertain in its produce. As you leave Boulogne, the soil improves in

stiffness, till about Amiens, and nearer Paris, it becomes strong clay with little sand.

All the way through Picardy the rock is chalk, hard enough for building. As you advance into the Isle of France, this chalk meets with the vitriolic acid, and becomes a solid gypsum; of this they burn great quantities now for their own consumption, but formerly for exportation. Paris has had the honour of giving its name to this useful kind of cement, as being the place from which we originally imported it.

The course of husbandry, through Picardy, is for the first year, wheat; the second, barley, or oats, followed by a fallow. They manure with chalk, with dung from the farm-yard, and with the fold. During the six months of summer they pen their sheep with hurdles on the fallows; but during the six winter months the flocks are confined all night, both for shelter and for safety, in close pens, where they make a quantity of good manure. The sheep are small. The shepherd goes before them. Together they make a beautiful appearance. The produce of

Picardy, in wool, is six hundred thousand pounds weight.

Their ploughs are excellent; in form similar to the Norfolk and Rotherham combined; with little iron except the coulter and the share. They have no chain nor drail, but only a wooden bar to serve the purpose of the latter, with a wooden collar to bring down the beam. The wheels are high, the beam is short, and the whole is both compact and light. They use two horses in the sand, three in the clay, and manage well without a driver. The harrows are triangular, and have wooden teeth, which is a sufficient index of the lightness of their soil. The shovel which they use, is like the Cornish. For want of streams their corn is ground by wind-mills. At Calais you have near twenty in full view, and near Paris you may see thirty-six between the city and S. Denis. In Picardy there are many extensive meadows, which might be watered, but they do not appear to have adopted this improvement.

Abbeville and Amiens are manufacturing towns. In the former is made good

damask, and the latter is famous for its woollen goods and camelots.

The cathedral church at Amiens is highly worthy of attention. The front of this edifice is singular. The foundation was laid in 1220, and the whole was finished in 1288. The length is four hundred and fifteen Parisian feet, the breadth of the cross is one hundred and eighty-two, the height four hundred and two.

Montreuil is pleasantly situated on a hill, and almost surrounded by an extensive meadow. It is a dismal town, as are most of the villages in Picardy. The houses are low; the shops are small, dirty, and ill furnished, which is a certain mark of prevailing poverty.

Soon after my arrival at Paris, I breakfasted with the Abbé Morellet. His library, consisting of eight thousand volumes, all well chosen, is a model of philosophical arrangement, founded on the three leading faculties of the human mind; the judgment, the memory, and the imagination. His reading desk is of a singular construction, but the most commodious of any I have met with. He sits in a large easy chair,

chair, the arms of which are streight, to support a light desk fastened on a board of about three feet in length. The desk has two flaps, the one upon the other, of which the uppermost will serve for writing, or, being lifted up and suffered to fall back sufficiently to make an angle of 45° with the horizon, serves at once to form a screen, when he sits before the fire, and to support any book, from which he wishes to take an extract. On his right hand he has a light table on castors, to receive this little desk, when he wishes to quit the chair; and on his left is a large desk for such books or papers as it may be needful to consult.

In the evening he presented me with a ticket of admission for three months, to a most agreeable society, consisting of four hundred members, which assembles in the *Sallon des Arts*, at the Palais Royal. They have a large hall for conversation; a commodious chamber for reading, well provided with public prints and modern publications; and a third room for music, with a gallery for chess. Under this suit of apartments is a coffee-house, from
which

which any kind of refreshment can be procured.

The day following he carried me to the French academy, to hear M. de Guibert pronounce an oration in praise of his predecessor, M. Thomas. The room was crowded with the first nobility of France, who attended not merely out of curiosity, but as a compliment to the new academician. I was happy in being present on such an occasion, and was much pleased with the discourse, in which not one fine image escaped unnoticed by the auditors. It was composed of that florid kind of eloquence, which is peculiar to the French, and suited to their language. Describing his reluctance to succeed so distinguished a member as M. Thomas, he said, “ When
 “ a station has been occupied by uncom-
 “ mon talents, when the public hath been
 “ long accustomed to behold the lustre of
 “ superior merit; the successor must ex-
 “ pect to meet with no indulgence; the
 “ object of their devotion is no more; the
 “ revered image hath vanished from their
 “ sight; but the pedestal remains, and the
 “ height of this will be a standard, by
 “ which

“ which to form an estimate of him, who
 “ shall presume to place himself upon it.”
 A general plaudit interrupted his discourse.
 When he proceeded to give the character
 of M. Thomas, he said, “ His natural
 “ imperfections served only to make him
 “ cultivate the qualities opposite to them;
 “ inasmuch that I never could discover
 “ what would have been his failings, but
 “ by the virtues in which he most ex-
 “ celled.” Here the applause re-echoed
 from every part of the assembly.

When a man has once established his reputation, he is apt to gain more credit than is due to him; and, whatever be his fort, whether wit, pleasantry, or eloquence, if, by often moving us, he has prepared us to be moved, he may command us at his will, and, keeping our expectation on the wing, he may excite our laughter or applause on the most trifling occasion. This, in some few instances, was the case with M. de Guibert, who gained most applause, when in my opinion he deserved it least. Thus, lamenting the untimely death of his predecessor, he began, “ When a tree, after
 “ having blossomed for a hundred springs,
 “ and

“ and scattered its fruit upon the earth for
 “ as many autumns, smitten with barren-
 “ nefs by time, falls and appears no more ;
 “ it has fulfilled its destiny, and in its due
 “ time submits to the irrevocable law : but
 “ for a tree in perfect vigour, flowing with
 “ sap, yearly pushing forth new roots, and
 “ promising by its fruits and verdure to be
 “ the wealth and glory of the surrounding
 “ plains ; let this be struck with thunder
 “ and be suddenly destroyed ; fawns, shep-
 “ herds, swains, all run to it, all lament it,
 “ and the mutilated trunk, now sacred, is
 “ for a length of time covered with liba-
 “ tions, and watered with their tears.”

Here their plaudits burst forth with reite-
 rated violence, and for a considerable time
 interrupted his discourse. The French are
 certainly more lively in imagination than
 the English, more fond of painting ; but
 not so much accustomed to the coldness
 of mathematical precision. Provided the
 imagery be rich and bold, they express
 their admiration, without staying to con-
 sider if it be accurately just. In all their
 assemblies they discover the quickest sensi-
 bility. Fond of the brilliant, not one fine
 sentiment,

sentiment, not one striking image, not one harmonious period, is ever lost or fails of its effect on them.

The French academy hold their meetings at the Louvre. Three hundred and twenty tickets were delivered out; but I imagine there must have been near four hundred in the room.

The days following I employed in visiting the cabinets of natural history in Paris.

The royal cabinet is delightfully situated at the entrance of the botanical garden. The Count de Buffon being exceedingly infirm, I saw this cabinet with Monsieur Daubenton, who shewed me every possible attention. From the animal kingdom, as I imagine, no collection is equal to this. In this part of natural history M. de Buffon certainly excelled. The minerals are very numerous, but much inferior to those which are in private cabinets. There are, indeed, large masses of gold and silver, but I cannot say that they appear to me well chosen.

The crystallized diamonds are fine, more valuable to the naturalist than to the jeweller.

The

The aqua marinæ crystals are very large.

The emeralds from Peru are large and clear : some are single crystals with hexaedral prisms ; others form a group or drusen.

Of tin, there is one large crystal from Bohemia ; but few good specimens besides.

The spathous iron, with silver, from Begori, in Dauphine, is worthy of attention.

The spathous lead ore, in fine needles, from the Hartz, is truly elegant.

Of copper, the chief and most valuable specimens are the malachites from Siberia ; of which some specimens are highly polished.

The antimony, in long needles, with heavy spar, from Bohemia is superb.

The sulphur, in large octaedral crystals, is said to be from Catalonia, but, as I apprehend, it is from Conil mine, near Cadiz.

They have here, as in all the other cabinets of Paris, large dodecaëdral garnets, uniformly incruited with green talc, from the duchy of Stiria. These garnets, when the crust is taken off, appear to have been formed in the talc as in its proper matrix.

Among

Among the fossils, the most striking are,

A nautilus, near three feet diameter.

Elephant's teeth, from Siberia, with an elephant's thigh-bone, from the vicinity of the Ohio, in Canada.

I remember to have seen, in Mr. Catcot's cabinet, in Bristol, part of an elephant and a monkey, both found in the stone quarries near Bath.

The ferns, which are found on the coal mines in Wales, with the corals of St. Vincent's Rock, near Bristol, are, like the monkies and the elephants, the natural produce of the East Indies, or of the torrid zone.

Various are the solutions of this phenomenon, given to the world by Catcot, Buffon, De Luc, Whitehurst, Hutton, and Saussure; beside many others, prior to these, not worthy to be named; but none of these are perfectly agreeable to truth, and to the appearances in nature, although every one of them states some valuable facts, more especially De Luc, who leaves all the others far behind him.

If

If ever a consistent history of the earth and of its mutations sees the light, we shall probably be indebted for it to a gentleman, who has been, with peculiar advantages, studying the subject more than thirty years, and from whom, indeed, have been derived most of the useful hints on which our best modern authors have built their systems. His account of ancient castles has been justly admired by all men of learning ; but, should he live to indulge the world with the true history of the earth, and of the changes which it has undergone, this will eclipse all his other works, and convince the most incredulous, at least as far as he enters on the subject, that nature and revelation perfectly agree.

After having visited the king's cabinet, I went round to the other principal cabinets in Paris :

M. d' Orcy, a former general, in the Place Vendome, has two apartments, one for reptiles, the other for minerals.

His minerals are numerous, large, and elegant.

Of

Of gold he has only two fine specimens. Of the other metals the principal are, copper in blue crystals, with copper blossom and green feathered ore.

Tin crystals from Wheal Trevaunance, in Cornwall, and one large crystal from Bohemia.

Lead ore, white, green, and white mixed with copper blue, from the Bannat of Temeswar.

Iron hæmatites in all its forms, a rich variety.

Blend with bright yellow pellucid crystals, elegant and rare.

Antimony in long coloured needles, permeating rhomboidal crystals of heavy spar.

The cabinet of *Monsieur de Romè de l'Isle*, Rue des Bons Garçons, presents a most interesting system of crystallization. With astonishing patience and acuteness, he traces the crystals of salts, earths, metallic substances, and gems, through an almost infinite variety, in beautiful succession, each to its elementary and characteristic form, and shews clearly by what laws they have departed from it. In the pro-

secution of his subject, he has clearly ascertained a fact of great importance to the natural historian, which is, that minerals may be infallibly distinguished by the form, the hardness, and the specific gravity of their crystals. Thus, by the sensible qualities of the mineral itself, if crystallized, we may instantly reduce it to its proper class, and judge of its contents, without the assistance of the fire. We began with examining his calcarious spars, than which none is more varied in its forms. These, even our dog-tooth spar of Derbyshire, he traced back to the rhomboidal parallelopiped, of precisely the same angles with the Iceland crystal, or double refracting spar; proving them to be only an aggregate of rhombs, regularly contracting from the base to the apex.

This investigator of nature's most secret path has almost reduced himself to blindness by his nocturnal studies.

A friend of his related to me a curious anecdote, which does much honour to his heart. In his youth he received a good education, and in his advancing years found all his wants supplied, without
ever

ever being able to discover to whom he was indebted, either for this bounty, or for his birth. That he might know the one, he laboured to find out the other. His first attempts were checked with a caution to forbear; and for a time he continued quiet, if not contented to remain in ignorance; but in the end, growing weary, and impatient to discover a secret, which was so diligently concealed from him, he gave way to his curiosity. Receiving no farther hints to restrain him, he grew more bold in his enquiries, till suddenly he found the stream cut off, before he had traced it to the fountain from which it flowed. Thus, at once disappointed and deserted, he had no resource but in himself. The straitness of his circumstances brought him acquainted with Mr. Foster, who employed him in making out, from time to time, his catalogues of minerals for sale at Paris. In this employment he acquired a taste for natural history, and an intimate acquaintance with mineralogy.

After some years, the marquis de Romè died, and by his will not only acknow-
C 2
ledged

ledged him for his son, but left him every thing which was in his power to bequeath.

The widow of the marquis, with her three daughters, cast themselves on the generosity of de Romè de l' Isle, who told her, " You have been accustomed to affluence, " and your daughters have been trained up " to high expectations: I have learned to " live upon a little; I shall take only a " small pension for myself; you and your " daughters may enjoy the rest."

Monsieur Sage, from whom I had the chief of this relation, took an opportunity of representing this act of generosity to the present king, who has made some decent addition to his income; and he is now in affluence, loved and respected by his friends, and admired by all men of science.

M. de la Bove, Rue des Champs Elizés, who is intendant of Dauphinè, has a collection of minerals somewhat similar to that of *M. d' Orcy*, but chosen with more taste, and consisting of smaller specimens. He excels in the productions of his own province, more especially in Schoerl, violet, green, and white, all crystallized and
blended

blended together in the same stone with asbestos.

M. Aubert, coachmaker to the king, in the Fauxbourg S. Denis, has a collection of minerals more beautiful, and in higher preservation than any of the former; for which, if I mistake not, he has been much indebted to Mr. Foster of Covent Garden, London, through whose hands have passed a great proportion of the finest specimens of minerals in Europe.

M. de Joubert, treasurer of Languedoc, Place Vendome, has a well digested cabinet of minerals and fossils, arranged by M. Sage. The specimens are good, many elegant; but their peculiar reference is to the sciences.

The *Duke de la Rochefoucault* has two spacious apartments, beside two little chambers, filled with minerals, arranged, not according to their genera and species, but according to the countries from which they came. Of these, multitudes are duplicates; some good, some bad, some whole, some miserably broken, but all covered with dust. The most distinguished specimens are a large mass of sulphur with

octaedral crystals from Conil, in Spain; a beautiful specimen of Malachites, of a considerable size, and highly polished; with antimony in large crystals. But that which is singular to this collection is, a clear rock crystal, with a beautiful sprig of Quartz, white like enamel, shooting in the midst of it.

The duke has few varieties of tin or copper.

His calcedony and agate, from Auvergne, are most interesting, as being the productions of volcanos, long since extinguished in that province.

The *Abbé Hauy*, of the royal academy, has a collection of crystals which is worthy of attention. He demonstrates that all crystals, of whatever size or form, are composed of primitive, minute, and elementary crystals, and that most of them, by proper fractures, may be reduced from the complex to the simple and elementary form. In the course of my visit, I saw him with a blunt knife *reduce* a mishapen mass of fluor to an octaëdral crystal, nor would it readily assume any other form. This discovery he made by accident; for, observing that the
angle

angle of a fractured hexagonal prism of calcareous spar was the same as of the rhomboidal, he was led to try the other parts of the crystal. By these means he found that the whole was in lamellæ of perfect rhombs, breaking easily and only on their proper surfaces, and yielding rhomboidal crystals. He is now pursuing this discovery on the other crystallized substances, obtaining the primitive or elementary form sometimes by heating and quenching them in water, at other times by breaking the rude mass, or compound crystal, with a hammer, varying his operations according to the nature of the substance. He is deeply versed in the mathematics, of which he has availed himself in this research. The simplicity of his manners is most engaging. This discovery beautifully illustrates the ingenious observations of de Romè de l'Isle on the elementary and compound forms of crystals, and throws much light on this branch of natural history.

M. Hassenfratz, engineer of the royal mines, and professor in the newly instituted academy of mining, has a few well chosen minerals, which are chiefly valuable, as be-

ing of his own collecting in the way of his profession. It is difficult to say whether he most excels in chemistry or mineralogy; for he is eminent in both.

He carried me, in our walks, to see a M. Stoutz, a German, distinguished for his superior knowledge in minerals and mining, who was employed on the part of the French government to visit the mines of Hungary, Bohemia, Saxony, and other parts of Germany. I found him perfectly acquainted with the nature of all mountains in which mines are formed. His collection is made upon a peculiar plan: every specimen of mineral substances in his cabinet, is connected with others from the same mine, forming a little collection by itself; and consisting of the metal in its ore, with all the intermediate strata or changes in the rock, from the surface downwards, each with references to the various depths from which they came, and observations on the mountains in which the mineral is found. Since I left Paris, I hear that count d'Aranda has sent him into Spain, to which country, with his superior talents, he will be a valuable acquisition.

M. Besson,

M. Besson, Rue S. Honorè, has the most elegant and most systematical collection of minerals I ever saw, beautiful as Mr. Foster's, and classed nearly upon the same plan with the honorable M. Charles Greville's. In his collection of flints, you have the whole history of flint, from its most rude appearance to what, for beauty, we should call its most perfect species; with all the varieties, in the most natural and methodical arrangement. The same outline he pursues in all mineral and metallic substances, tracing them through all their appearances and forms, from those that are elementary to those which are most compounded, and shewing the mineral, not merely in all its matrices, but in all its combinations. In no cabinet did I ever see beauty and science so happily united. Part of this wonderful collection is not yet arranged for want of room, but chiefly for want of money to purchase cabinets. It is much to be lamented that a man of his abilities, who has discovered such zeal, such indefatigable industry, in traversing the mountains, visiting the chief mines of Europe, and exploring their contents, should be distressed

tressed and straitened in his pursuit of science. But more is it to be admired, that a man of his extensive knowledge should be hid, and among all the monarchs of Europe, among all the great, among all the patrons of science, should find no protector.

M. Sage is director of the mint, and principal of the royal academy for miners.

When a man of science enters the spacious hall in which the minerals are kept, if he be not altogether destitute of taste, he will be at a loss which to admire most, the building itself, or its contents. The elegant simplicity of the painted dome, the surrounding gallery with its pillars and pilasters, the whole covered with Italian stucco, the harmony and just proportion which every where prevail, and the disposition of the minerals, excite the most pleasing sensations of delight. In this beautiful apartment, with much simplicity and taste, a recess is formed for the laboratory, where *M. Sage* exhibits his experiments when he is delivering his lectures to his pupils. In the centre of the hall, an
area

area is inclosed for them by a skreen, which forms his cabinet for the reception of his minerals. In his collection, his principal attention has been to science; and for that reason he has chosen specimens best suited to exhibit the metal, the matrix, its various combinations, and the acids by which it is mineralized, whether the sulphureous, the arsenical, or the phosphoric. Besides this classical collection, he has a provincial one in the gallery, where he has arranged the minerals according to the country from which they come. His method is both pleasing and improving. To complete the whole, he has deposited in a cabinet by themselves the produce of all the various minerals in his collection, the result of his most accurate assays.

This inestimable treasure is designed for the use of students in the newly established academy for miners; an academy which, without distinction of nation or religious creed, is open to all the world. In this institution, as in all other establishments for extending the bounds of science, and diffusing knowledge freely and without expence among all ranks of people, we must
admire

admire the liberality of sentiment, the high spirit, and sense of dignity, which has distinguished the sovereigns of France.

M. Sage is the principal and father of this royal academy, and at the same time the chemical professor. Besides himself, there are four principal professors, whose stipend is two thousand four hundred livres each (or one hundred pounds sterling) per annum. There are five inspectors, each at three thousand livres pension, fifteen hundred for travelling expences, and three hundred by way of gratuity, if their diligence deserves it; six engineers, at six hundred livres pension, four hundred for journeys, and two hundred gratuitous; twelve scholars, at six hundred livres pension, and two hundred for gratuity. Of these, two are constantly travelling in Germany, with three thousand six hundred livres each for their expences.

There are besides, twenty supernumeraries, or expectants, without any pension.

The inspectors and the engineers visit all the mines of France, and make a report to government, not merely of the produce, but of the management, together with
such

such observations as they may think needful to communicate. They are likewise to be sent occasionally into foreign countries, to examine the improvements which are made in searching for and working mines. From this academy the mines of France will be supplied with skilful engineers and managers. All the members have a blue uniform with M. R. on their buttons.

I was much surpris'd to see in most of the cabinets, and in all the printed catalogues at Paris, a substance which perhaps does not exist in nature; it is native tin. What they produce for such, appears dull and brittle, and is in fact nothing but tin returning to a calx. Whilst we smile at their credulity, we must lament that men of science should have been so easily deceived themselves, and, without intending to propagate a falsehood, should have deceived all those who have any dependence on their knowledge and veracity. For me it was by no means difficult to detect the mistake; because every specimen of this supposed native tin came from my own cabinet, and went out from thence under the
deno-

denomination of dephlogisticated tin. Of this, large fragments, and even blocks, have been found in the moors near St. Austle, but never at any considerable depth, nor far distant from some old furnace or habitation, of which the tradition is, that they were, in some remote period, occupied by Jews. In the same places copper implements have been likewise found returning to a calx, some friable and red, others saturated with the basis of vital air, and therefore covered with malachites. This transmutation throws light on the red copper ore, with its octaëdral crystals found among the branchings of native copper in deep mines. The circumstances are different, but the operation of nature is the same in both.

Having viewed all the cabinets of natural history in Paris, I determined next to survey its environs.

The most striking feature in this vicinity is Montmartre, a mountain of Gypsum, at the head of the street Montmartre. The strata are horizontal. Sixteen of these have been laid open to the depth of more than one hundred and forty feet,
and

and are seen in the following order. The soil is sandy, covering chalk rubble, in which is flint. Under these, clay; fossil shells; crystals of selenite; gypsum rock; calcareous earth; clay; gypsum rock; clay; gypsum rock; clay; gypsum rock; marly clay; lenticular crystals of selenite mostly in pairs, united face to face, of which the spears are only fragments; fuller's earth, perfectly free from impurities, in a stratum of about eighteen inches; gypsum rock, separated into laminæ by strata of selenitical crystals, and charged with fossil bones. The quarries and excavations are immense, to supply the numerous kilns constantly at work. The gypsum rock consists of selenite and chalk, which, being burnt, the former losing its water of crystallization, and the latter its fixed air or cretaceous acid, becomes plaister of Paris: when this is made into mortar, the selenite seizes the water, and crystallizing becomes instantly hard.

At Belmont, which is distant about half a mile from hence, the same strata have been discovered.

Before I left London, I had purchased lenticular crystals of quartz; and as this
form

form is peculiar to the calcarious genus, I was desirous of seeing the spot from whence they came. With this view I visited the lime-stone quarries in the vicinity of Passy, where I gained the most perfect satisfaction, and saw clearly that the quartz had occupied the spaces left empty by decomposed selenite, which, as I have before observed, is calcarious earth saturated with the vitriolic acid. The lime-stone rock is here charged with turbinæ and bivalve shells. The strata are horizontal. From these quarries they get building stone for Paris. Many of these extend more than one hundred yards under ground, with a roof supported by large pillars. Nearer to the city they sink pits about eighty feet, then drive and raise the stones by engines.

There is not the least appearance of primitive mountains in the vicinity of Paris. All has been transported, and all is horizontal.

Near Fontainebleau, they find a grit-stone, or composition of sand, with a calcarious cement. In the crystal the calx prevails, and takes the rhomboidal form, although

although the silicious matter appears both to the eye and to the touch to be predominant in quantity.

From the abundance of selenite in the immediate neighbourhood of Paris, the water of their wells is unfit for use.

Having heard much of Pont de Neuilly, I wished to see it. Taking advantage, therefore, of the open weather, with a bright sun, in the month of February, I took my morning walk that way, through the garden of the Thuilleries, and the Elysian Fields. From thence, there is a wide avenue of trees, with a good pavement in the middle all the way for near four miles.

This part of the country is flat, skirted by distant hills. The soil is a hungry sand, all arable; but too poor and too light for wheat, and all open *common-field*, divided, as in England, and all over Europe, excepting Ireland, in small scattered lots.

This kind of tenure, with this minute division, mark the slow progress of the plough at more ancient periods; when, from time to time, as increasing population

urged them, they severed a new portion from the common pasture, and divided it, as far as related to the tillage, among the numerous tenants of each manor. In England, the rapid progress of agriculture, in modern times, is strongly indicated by the straightness of the hedges, because all ancient bounds are crooked.

Between Paris and the Pont de Neuilly, their crops are barley, oats, and rye, for which they plough with two horses, guided with check reins, without a boy.

Within two miles of Paris, on the left hand, is the wood of Boulogne, from which the country is so plentifully stocked with game, that between that wood and Paris, in the compass of two hundred acres, I saw more than fifty brace of hares, and at least one hundred brace of partridges: a wonderful phenomenon so near to the metropolis, arising, not merely from the constitution of their government, but from the strict execution of their laws. In this we are to look for the security of person and of property in France; where at the same time few are punished, because few venture to transgress.

The

The Bridge of Neuilly is perfectly horizontal, and remarkable for its elegant simplicity.

On my return, I visited the Hotel Dieu, where the sick are in number two thousand five hundred and seventy-four, besides five hundred and seventy-one officers or attendants. In all, they make three thousand one hundred forty-five persons to be lodged and fed. I observed four in a bed, but they have had six or seven, and among these the dying with the dead. The sick, although so miserably provided for, cost the public thirty sols, that is, fifteen pence each per day. They have one ward in the winter, containing about four hundred persons, set apart for those who pretend disease. The practice of stowing so many miserable creatures in one bed is to be abolished, and surely upon the best of principles, for no man who reasons for a moment can hesitate to say which is preferable, to make a few happy, or to render many completely wretched. But the misfortune is, that benevolence is often blind.

This change in the system of the Hotel Dieu has been promoted, if not suggested, by M. le Necker, who, in the hospital of S. Sulpice, has set an example worthy to be followed, as reflecting the highest honour both on the understanding and humanity of that most accomplished woman. She has provided each patient with a separate bed, with the best attendance, and with every thing which can administer to his comfort. Yet all this, by a due attention to œconomy, she does for seventeen sols and six deniers each per day, being little more than half what they cost at the Hotel Dieu.

The next day in the morning I visited the hospital called La Salpêtrière, in which are maintained more than seven thousand foundling girls, with a few aged paupers, and about nine hundred prostitutes. This number is considerable, but these are only such as were guilty of other misdemeanors. On the list of the police are more than twenty-eight thousand of those abandoned and miserable women, who, in the dusk of the evening swarm
in

in every street. In this hospital they have eight hundred children employed in needle-work and spinning, of which number many excel in most beautiful embroidery. When one of the old women dies, her husband leaves the hospital. The government is by a matron, fourteen priests, thirty-two sisters of a superior order, with fifty more, who are subordinate to these.

February the 20th, I ~~was~~^{Present} at a solemn service, celebrated in the church of S. Eustache, for the repose of the soul of the Duke of Orleans. The whole was conducted with the greatest magnificence and taste. The street leading to the church was lined with soldiers, horse and foot, stationed at convenient distances, besides some who were patrolling. The front of the church was covered, and all the choir was lined with black. At the bottom of the choir was a coffin raised upon a catafalque, or bier, which was about thirty feet high, twenty-four feet long, and eighteen wide, all covered either with mantles and escutcheons, or with historical pictures, and forming a well-proportioned pyramid. On the pedestal, at the four corners, were

four urns, supported by columns, and filled with spirits, from which proceeded a blue and lambent flame, the kind of light best suited to the melancholy scene. This lofty catafalque had over it a canopy, which hung from the roof, about forty feet above the coffin. Over the altar was a silver crucifix, large as life, covered likewise with a rich canopy, adorned with plumes, and lighted by ~~twenty~~ four large wax tapers in golden candlesticks. Guards were stationed round the supposed body to keep off the multitude; I say the supposed body, for his body had been previously interred with the same pomp and ceremony at Vale de Grace, and his heart had been deposited in the country. The chief mourners upon this occasion were the Duke of Orleans, his son, and the Duke of Bourbon, attended by all their nearest relations and their friends. The funeral oration was pronounced by the Abbé Fauchet, who, like all the good French writers, with their peculiar kind of eloquence, rose sometimes to the true sublime.

To the Duke of Orleans belongs the Palais royal, which is now the favourite evening

ing walk, being equally sheltered from the sun in summer, and from the rain in winter. The dimensions of this quadrangle are nine hundred feet by three hundred and sixty; and the walk is twelve feet wide, surrounded by coffee-houses, traiteurs, and shops of every kind. The square is planted; well gravelled, and well lighted in the evenings.

Ths pictures of this palace and of Versailles, with those which abound in many of the convents, have been so well described, that I shall observe the strictest silence on that subject, always remembering, that I am hastening into Spain, and taking France only by the way. Such things, however, as others have not noticed, and are yet worthy of attention, I would slightly touch upon, that I may not leave too great a chasm between Calais and Belgarde.

In the evening of February 28, being the last day of the carnival, when Catholics bid adieu to festivity and mirth for forty days, all Paris was in motion, and some thousands were in masks, men in the dress of women, and women in the dress

of men; all assuming characters, and many sustaining those characters with spirit. Popes, cardinals, monks, devils, courtiers, harlequins, and lawyers, all mingled in one promiscuous crowd. In the street of S. Honoré alone were assembled more than one hundred thousand souls. This street is two miles in length. With such a multitude, although more than four hundred coaches were constantly parading on one side the street, and as many on the other, in opposite directions, such were the precautions, that no accident either happened or could happen. To preserve the most perfect order, foot soldiers were stationed at the mouth of every street where carriages could pass; and in the middle of the streets, horse-guards and infantry were constantly patrolling to keep coaches in their proper line. For this purpose they employed one hundred horse, and twelve hundred of the foot guards.

I saw one elegant coach quietly taken into custody for some indiscretion of the coachman.

At the time of the king's marriage, they had neglected these precautions, and several
hundreds

hundreds lost their lives, either trampled under foot, or crushed to death.

Before I left Paris, I obtained a ticket of admission to the *Licée*, near the *Palais royal*, where a numerous society of gentlemen and ladies of the first fashion meet to hear lectures on the sciences, delivered by men of the highest rank in their profession. The sciences they cultivate are the mathematics, chemistry, natural history, experimental philosophy, anatomy, civil history, polite literature, and all the languages of Europe. Their apparatus is magnificent, and all their mathematical instruments, the best which can be procured. They have a very elegant suit of apartments, one for reading and writing, another for conversation, and a third for the lectures. The subscription is only four *Louis* per annum. I was much struck with the fluency and elegance of language with which the anatomical professor spoke, and not a little so with the deep attention of his auditors. The French, with all their volatility, can be grave when it is proper to be so.

After this pleasing entertainment, I called

ed to take leave of M. Hassenfratz, whom I found verifying an experiment which has been made in France, and which may be of the highest import to the bleachers of linen. This process they accomplish in twelve hours; and at the expence of one penny English they can bleach six ells of linen. For this purpose they begin with dephlogisticating a quantity of marine acid, by means of manganese, after which, having previously diluted it with water, they saturate the acid with an alkali, and thereby leave the dephlogisticated air at liberty to act on all colouring ingredients which are found in the materials to be bleached. In the same manner the green wax from America may be rendered white and fit for use. The same solution will likewise serve for a test, by which to try the durability of colours in cloth, because when they fade, it is only by the action of dephlogisticated air diffused in the atmosphere. This operation explains the effect of manganese in making glass pellucid.

Previous to my leaving Paris, I enquired the price of provisions in the market, which I found to be as follows :

Chickens

Chickens and ducks, fifty-five fols each.

A small turkey, five livres.

Butcher's meat, ten fols per pound all the year.

Pork and veal, at this time sixteen fols per pound.

Butter, thirty-six fols.

Wine in the city, twelve fols, and out of the city, eight fols per bottle.

It is the policy of the French government to make all these articles dear in Paris.

J O U R N E Y

F R O M

PARIS TO BELGARDE.

HAVING accomplished the purpose for which I came to Paris, in obtaining letters of recommendation to Madrid, and the weather proving more favourable for travelling than it had been in the beginning of the month, on the fourteenth of March I set out with an agreeable party in the diligence for Lyons. To those who can rise at two in the morning, and have an appetite for dinner before nine, this mode of travelling is not unpleasant.

The first day we dined at Melun, and lay at Villeneuve la Guierre. The next day, passing through Sens, where the Dauphin's monument

monument is much admired, we dined at Villeneuve le Roi, and lay at Auxerre, to which city there goes a large passage-boat from Paris, which, ascending the rivers Seine and Yonne, performs its voyage in three days, including the intermediate nights, during which it is unremittingly, yet slowly, moving on. This boat is much used in summer, and, during the day, is very pleasant, passing through the richest and most beautifully varied country. The passengers carry their own beds, and spread them in a spacious cabin.

All the way from Paris to Auxerre the prevailing soil is sand, being a continuation of that vast tract of sandy country which stretches from Dieppe by Rouen and Orleans to Bourges, yet under the sand on the hills, chalk appears. The fields are open, and the country abounds with corn and wine.

Auxerre is a rich city, conveniently situated for trade. The cathedral is a fine old structure, and worthy of attention. It is much to be lamented, that the chapter has never yet established an accumulating fund, to perfect what has been left unfinished.

nished of this noble edifice, and to complete the tower, which daily reproaches them for their want of zeal.

Having passed Auxerre, we lose sight of the chalk, and in its place we find either a calcareous freestone, or a limestone rock, in horizontal strata; but both the limestone and the chalk abound with marine productions. The face of the country, as far as relates to soil, rock, culture, and produce, bears a strong resemblance to that between Bath and Atford, with this peculiarity, that all the hills are here upon one level, being evidently postdiluvian, formed by torrents, and ~~intersected~~ by deep ravins. Nature here hath not perfected her work. Neither hills nor vallies have yet assumed their proper form and character; all is confusion, ruin, devastation. But when the heavy rains and torrents shall have sunk the ravins, widened the vallies, and, wearing away the angles from the craggy mountains, shall have reduced them to gentle declivities, or to easy swells, the rains will cease to be destructive, the raging torrents will become gentle streams, and the surface of these hills,

*

clothed

clothed with verdure, will be protected from future devastation.

When we came to Vermanton, we began to find blocks of granite, brought down by the torrents from the mountains; and, arriving at Rouvray, we saw the granite rock itself. From this circumstance, without having recourse to the barometer, we have reason to conclude that we have ascended to the highest level in this part of France; and, upon examination, we shall find in this vicinity the sources of many rivers, which running to the east, to the north, to the west, and to the south, empty themselves into the Seine, the Loire, and the Saone.

Not that we are to conclude from hence, that granite is the upper stratum of the earth, covering the limestone and the chalk, because the reverse of this we find to be the fact; but where chains of rugged granite mountains are seen, experience teaches us to look for nothing higher. Thus we shall find it on the most lofty summits of the Alps.

About Rouvray the soil is decomposed granite, of which the quartz and silicious sand

sand remain upon the hills, whilst the clay and mica are washed into the vallies.

All here is arable inclosed. They use five horses in their ploughs.

The cathedral of Autun shews great antiquity. In ascending the marble steps which lead to it, I was struck with the number of gryphites in this blue marble without the least vestige of any other shell.

As we had been descending a considerable time by the side of the Arroux, a little river which flows into the Loire, and were come to a much lower level, I was not surprised to meet with marble.

When we came within five leagues of Challon, and began to fall down towards the Saone, losing sight of the granite, we found only limestone, charged with gryphites, and covered with sand, which appeared to have been washed from a superior level.

Challon carries on much trade in corn and wine. The waters being out, we could not go down the Saone, as was intended. I was not sorry for this, because, although the country bordering on the river as you approach Lyons is most enchanting, I had
seen

seen it, and retained a lively impressi^on of its beauty.

Between Challon and Macon is rich, and mostly flat, but before we came to Lyons, we met with hills and granite, and indeed where the Saone enters the city it has made a passage for itself through the granite rock, which it has fretted away to the depth of about one hundred feet, leaving it on one side perpendicular like a wall.

All through Burgundy they use oxen on the road, yoked by the horns, which is certainly the best way of working them. The reason will be obvious, if we consider that by this mode of proceeding there is no strain upon any of the smaller muscles of the neck. Though the pressure be great, the vertebræ are only in the same proportion locked close into each other, precisely in the same manner as are the bones of the leg and thigh of him who uses Sampson's girdle. This girdle, as it is known, a man puts round his loins, whilst he sits on a bench with his heels against any immovable object; thus situated, and keeping his legs directly in the line of draft, he may suffer ten, or even twenty men, to pull at

the girdle without moving him; but a strong man, who was trying this experiment, exulting in his strength, took hold of the rope which was fastened to the girdle, and thereby elevating the line of draft, and having nothing to depend upon but his muscular exertion, he was raised in a moment, and thrown upon his face. Setting aside, however, all reasoning upon this subject, the fact speaks for itself, and all who have observed the loads which two oxen on the continent will draw, must give the preference to their manner of yoking them.

The description of Lyons, as to its public edifices, I shall leave to others, and shall consider it only with regard to manufacture. Enjoying a delightful climate, and situated at the conflux of the Saone and of the Rhone, it must very soon have risen to importance. Its inhabitants have in all periods been distinguished for industry, for arts, and for love of freedom. Under the Romans, as a municipium, it possessed valuable immunities; and when it became a colony, as such it was cherished and protected. Under the sovereigns

reigns of France it has enjoyed peculiar privileges, being governed by its own magistrates, and guarded by its own militia. Four annual fairs, each of fifteen days, instituted in the reign of Lewis XI. have much contributed to the advancement of its traffic.

Its good government naturally attracted citizens, whilst the troubles excited at various periods in the neighbouring states, more especially about the year 1290, between the contending factions of the Gwelps and Gibelines, occasioned many from Italy and Florence to seek refuge in a city where they could live in security and peace.

The principal dependance, and the source of wealth to Lyons, is her manufacture of silk in all its branches.

The first who introduced this into France was Charles IX. but the chief encouragement it received was in the watchful attention of Henry IV. who in the year 1602 made a contract with some merchants to deliver four hundred thousand mulberry-trees, five hundred pounds of seed, and the eggs of silk-worms to the

amount of one hundred and twenty and five pounds, with six thousand copies of a work containing all proper directions for managing the plants, the worms, and the silk produced by them. These were to be distributed in the generalities of Paris, Tours, Orleans, and Lyons, at the rate of a hundred trees, and half an ounce of eggs to every parish. The ecclesiastics, as well regular as secular, assisted in this work, both by their precepts and example. But owing to the civil wars, by which France was distracted during two succeeding minorities, little was done effectually to animate this profitable commerce, till Lewis XIV. assumed the reins of government: from that period its advancement has been rapid.

In the year 1667 there were two thousand looms at work, but in 1768, more than eleven thousand; and such is the progress of the manufacturers, that the grower of silk is not able to keep pace with them; for at the present time they are obliged to purchase from foreigners more than twenty millions of pounds weight to supply the market.

The

The silk-weavers here have almost acquired a monopoly of taste, and by this circumstance have given an example to the world of what competition can do, when properly directed.

Taste is not any where cultivated with such attention as at Lyons. The manufacturers have at times employed more than a hundred pattern-drawers, whose invention is unremittingly upon the stretch, except when they obtain leave of absence, which is sometimes granted even for twelve months, that they may rest their imagination, and acquire new ideas.

The first person noticed as having excelled in this profession was *Revel*, the friend and companion of Lebrun, an artist whose talents were so far superior to those of his successors, that they regard him as their Raphael. After him came *de la Salle*, equally famous for his birds, his landscapes, his flowers, and his fruit. *Jean Robin*, anxious that the embroiderers might copy nature, and introduce into their works from her rich variety, planted a garden in the vicinity of Paris for the cultivation of exotic plants; and thus,

without having such an intention, laid the foundation of the phyfic garden. It was here that the celebrated Pierre Vallet, of Orleans, embroiderer to Henry IV. and Lewis XIII. acquired his fame.

Although *Lyons* has enjoyed singular advantages, she has likewise had to struggle with difficulties. These are admirably displayed by the Abbé Bertholon, in a work of his upon this subject, lately given to the public; and as every government in Europe is interested in his observations, I shall briefly state them. The various obstacles to the prosperity of trade have been and must be as long as they exist;

1. *War*, whether foreign or domestic, civil or religious; from factions in the state, or from the desire of freedom. Because commerce is frightened at the appearance of the laurel, and flourishes only whilst shaded by the peaceful olive.

2. *Persecution*, and want of toleration; as in the revocation of the edict of Nantz, operating in the same manner as the expulsion of the Moors from Spain.

3. *Laws* indiscreetly interfering, prying, med-

meddling, restraining, vexing the manufacturer or the merchant in his operations.

4. *Taxes*, such as either directly or indirectly check the consumption. It was not till 1743 that the manufactures of Lyons were exported duty free, and even now all provisions entering the city pay a heavy tax, particularly wine. The consequence is, the rise of labour in the first instance, and, as the weavers on festivals resort with avidity to the neighbouring villages to indulge themselves with wine, they acquire habits of intoxication.

5. *Festivals* multiplied raising the value of the remaining days, and leading to every species of excess.

6. *Prejudices* respecting *usury*, tending to keep money out of circulation, and thereby to raise the interest on it, to the disadvantage of those who wish to borrow. In consequence of this, money is at 6 per cent in Lyons.

7. *Luxury* among the manufacturers, consuming their capitals, and cramping their operations.

8. *Titles of Nobility* and rank granted to merchants, under the absurd idea of promoting trade, but in truth diverting the

streams by which commerce should be watered. This mistaken policy is not uncommon in the present day. How much wiser was the conduct of Louis XI! he was a friend to commerce, and cherished it by the most marked attentions, by wise regulations, and by admitting to his table those who signalized themselves in its advancement.

A merchant named Maitre Jean, flattered with this distinction, solicited a patent of nobility; the king granted his request, but from that time never invited him to dinner. Mortified with being thus neglected, when he thought himself more worthy of attention, he ventured to expostulate, but was silenced by this reply: “ Allez M. le Gentilhomme. Quand je
 “ vous faisois asseoir a ma table, je vous
 “ regardois comme le premier de votre condition; aujourd'hui que vous en
 “ êtes le dernier, je ferois injure aux autres, si je vous faisois la même faveur.”

The learned Abbé, to whose work I am indebted for much information, recommends the white *female* mulberry as best for silk worms, and suggests an idea, that
 if

if suffered to live on the trees in the open air, yet protected from the rain, they would become more hardy, more free from diseases, and spin more perfect silk. He mentions a *M. Pernon*, who produces silk as white and beautiful as that of Nankin; and recommends for bleaching the Bengal silk, to soak it repeatedly in a mixture of spirit of wine and marine acid, in the proportion of thirty-two to one.

According to his account, no people either work longer or fare harder than the weavers of Lyons; rising before the sun, and continuing in their looms till a late hour in the night, to procure a scanty pittance for themselves and for their children. He tells us, that no instance has been found of three successive generations who have been weavers: the first is feeble, the second is diseased, and the third never comes to maturity, unless transplanted to a soil, and engaged in some occupation more conducive to health.

Emigrations have been the consequence of these hardships; because neither laws nor chains will keep the artificer from
wan-

wandering, when he is a prey to hunger and despair. (V. Commerce de Lyon, par M. l'Abbé Bertholon, &c. &c.)

In Lyons, the principal merchants and manufacturers are said to be protestants. This observation, if well founded, is worthy of attention, and the influence of religious opinions in restraining or promoting industry and emulation, as a political question, is highly worthy of discussion ; but I shall wave this for the present.

Having formerly seen every thing remarkable in Lyons, and being impatient to be gone, I watched with anxious expectation the rising and falling of the river. The day after I came to Lyons, towards noon, we began to conceive hopes that the diligence might venture to depart.

The waters ran off with great rapidity, the river sunk apace, and soon found its proper bed ; the passengers hastened to the quay, the boat took in its loading, and in less than two hours after mid-day we began to float down the stream.

This vessel is very commodious for passengers, having a good deck to walk on

when the weather is agreeable, and a warm cabin to which the genteeler passengers resort when the atmosphere is cold or rainy.

Passing between the high mountains of Dauphiné, in a winding course, and gliding along at the rate of six miles an hour, in about five hours we arrived at Condrieux, a little village not far distant from Vienne, famous for its wine. M. David, the *aubergiste*, did justice by us, and credit to himself, by the specimens which he produced. He sells this wine at six *louis* a *pièce*; each *pièce* containing two hundred and fifty bottles, or one hoghead nearly. It is a sweet wine, exceedingly delicate in its flavour.

The next morning, March 21, we passed under Hermitage, where M. Larnage, the lord of Teint, annually makes about seven hundred hogheads of the choicest wine, which M. Bourgoise, a merchant of Teint, in Dauphiné, vends on his account. The situation and the soil are certainly favourable for making wine, but its peculiar excellence depends on the choice and management

nagement of the vines, to which M. Larnage pays the most minute attention.

As we approach Valence, near which the Isere falls into the Rhone, this river makes an angle to the right, as if diverted from its course, and, being lost behind the hills, shews Valence to great advantage, seated on a rising ground, in a plain of about six miles in width.

The mountains are here calcareous. That which is west of the river, and opposite to Valence, rises perpendicularly, as if it had been cut asunder, and does not retain the smallest vestige of the half which it has lost. The strata are horizontal; the soil in the plain is sand, but in many places it is full of pebbles to a considerable depth.

All the way as we pass between the mountains, some near to the river, others more remote, we remark, either on their summits or their sides, the ruins of ancient castles, each protecting its little village, and many of them carrying marks of the most remote antiquity.

This night we took up our quarters at Ancone, and the next morning passed by
Viviers,

Viviers, the capital of the Vivarez. This little city is most romantic, and, from a proper point of view, would make a pleasing landscape.

At noon we passed the Pont S. Esprit, where, leaving the marquis de Gras and some other officers, in whom I had found agreeable companions all the way from Paris, I began to travel alone.

From Lyons to Avignon, which is one hundred and fifty-two miles, you pay no more than twelve livres, or ten shillings sterling, for your conveyance.

The price of provisions at S. Esprit is fixed by the magistrate. Beef, five sols; mutton, six, excepting in June and September, then seven sols per pound; labour is twenty sols a day in winter, but in the vintage, diet and ten sols, or about five pence sterling.

From Pont S. Esprit to Montpellier, which is seventy miles, I took a return coach, and, without the least difficulty, agreed with the driver for nine livres.

From the Rhone we ascended for many leagues, and observed the limestone rock charged, yet sparingly, with small round gravel

gravel of white quartz. The country we passed through is rich, and the corn-fields are covered with mulberry-trees, vines, figs, apricots, and peaches.

As we rise towards the heights of Valignière, we pass by Bagnols, a very ancient but wretched town, inclosed with high walls, and defended formerly by towers.

Near the summit of these mountains, we observe the craggy rocks of limestone wasted and laid bare by frost, by winds, by rain, to whose rage and violence these elevated regions are constantly exposed. Between these rocks the road meanders, presenting at every step the most enchanting views of rugged cliffs, interspersed with the ilex, the juniper, the box, the cyprus, besides thyme, lavender, and a pleasing variety of flowers. Amidst this rich profusion, I was struck however with the diminutive appearance of the cyprus and the juniper.

We lay at Valignière, a miserable village anciently defended by a castle, the ruins of which remain to remind its inhabitants of their superior happiness, in no longer

longer needing the protection of those walls.

In this country they have no other implements for cultivating their vineyards but such as are used in Cornwall, the biddex and the shovel, both perhaps of Celtic origin. They have a light swing plough, without coulter, fin to the share, and mould board; instead of which, they have two little wooden fins fastened into the heel of the share, one on each side, to turn the earth to the right and left, and thus form a rafter. The beam is long, and is fastened immediately to the yoke. They plough with two oxen, yoked together by the horns, and guided by the ploughman. The soil is very light.

From Valignière we constantly descended to the famous Pont du Garde, a Roman aqueduct which joins two high mountains. It is about one hundred and fifty feet high, and eight hundred long upon the top, but not more than five hundred at the bottom, near the water's edge. The lowest tier has six arches, the middle has eleven, but the upper one has thirty-five; the whole being of the Tuscan order, and constructed with

with large stones, has the air of greatness and of simplicity most happily combined. It was built for the purpose of conveying water into Nîmes. To this edifice, about forty years ago, they added a bridge, much wanted over the Gardon, which is here about seventy feet wide.

At Remoulin, not far from the Pont du Garde, the limestone rock appears to be entirely composed of broken shells, united by a calcareous cement, and charged with small round gravel of white quartz, precisely the same as I had noticed in ascending from Pont S. Esprit.

March 23, at noon, I arrived at Nîmes, and began immediately to feast my eyes with a view of its venerable relics. An accurate account of these may be found in a variety of books, as having been described by travellers of every nation. At the present moment, my mind contemplates an object more venerable than these monuments of Roman greatness, and my attention is wholly occupied with the pleasing image, the image of a shepherd, who lived only for his flock: this was M. de Becdelievre, late bishop of Nîmes, a prelate equally

equally distinguished for wisdom, benevolence, and piety. Not contented with relieving from his purse the distresses of the indigent, he increased the produce of labour in his diocese, by transferring to the Sundays many of the numerous holidays which encourage only idleness and vice. In the distribution of alms, his benevolence was guided by discretion. He was a stranger to that destructive species of liberality which originates in blind sensibility, and has no other foundation but undistinguishing compassion. He consulted at once his head and heart, neither turning away his eyes from beholding misery, nor relieving it merely and at all hazards, that he might avoid the painful sight; but, gave such assistance in the season of distress, as both reason and religion must approve; leaving the poor to feel precisely that degree of want, which, as long as they retain their freedom, will be always need-
ful to stimulate their industry. Thus, he resembled the prudent gardener, who waters the drooping plant, and continues to water it but only whilst the heavens withhold their rain. Zealous for the peculiar

doctrines of his religion, he made no distinctions in his benevolence, not only tolerating, but doing good to those who could neither receive the creed, nor conform to the mode of worship established by their country. This single prelate, by his wisdom and beneficence, in the space of five and forty years much more than doubled the number of inhabitants of Nismes; for, having found only twenty thousand, he had the happiness before his death of seeing fifty thousand rise up to call him blessed.

March 24, in the evening, we got to Montpellier; and the next day, after I had delivered my letters to the Count de Perigord, governor of the province, I began to explore the country.

The first object which attracted my attention was the asparagus growing wild. These are brought to table, but they are not so sweet and agreeable as those which have received cultivation, nor are they so large.

Wandering about beyond the Perou, I stumbled upon a beaked oyster, (*ostrea rostrata*) and looking round, I soon discover-

ed the spot where the precious relick had been deposited, when this elevated spot was under the surface of the sea. There is a regular stratum of these oysters of about eighteen inches thickness, without the admixture of any other species, or of any other substance, extending east and west, as may be seen in every quarry which has been opened in those directions, and hiding itself under the Perou. Some of these shells are found in the superincumbent rock, and a few stragglers in the sand above it.

In the Fauxbourg Boutoné, the limestone contains the echinus, or sea urchin, and the scallop with deep ribs.

Early in the month of April, the weather being most inviting for excursions, I determined to extend my walks to some more distant objects. Of these, the only one which deserved to be noticed is a volcanic mountain, called Montferrier, described by M. Jubert. In ascending towards this, I met with a phenomenon which frequently occurs, but which has never been accounted for. At a few yards before me I saw a whirlwind taking up

a cloud of sand, raising it obliquely in the air, and then carrying it before the wind as far as my eye could trace it. It has been said, that the meeting of two winds, nearly in opposite directions, forms the whirlwind; and that the consequence of this must be a vacuum in the middle, into which the air rushing with impetuosity, carries even bodies which are specifically heavier than itself. But to this solution there appears to be more than one objection; for, in the first place, as the sand rose with a rotatory motion, it should have gone, like all other heavy bodies, not to the centre, but to the circumference. But, in the next place, taking this supposed vacuum for granted, bodies specifically heavier than air should descend and not rise in it; unless, like the torricellian tube, it were open below, and hermetically sealed above. To account for this effect by referring to the rise of water-spouts at sea, is only to explain one difficulty by another. When we shall know by what power in nature a cloud, containing many thousand tons of water, is suspended in the air, we shall be, perhaps, prepared to reason with
a better

a better prospect of success upon the nature and the cause of whirlwinds.

In the way to Montferrier the rock is all calcareous; at a lower level it is pudding stone, hard and compact, with both the charge and the cement calcareous. At a higher level, it is a calcareous concretion, or petrification by incrustation, light and porous, like a sponge, yet not so soft, inclosing leaves, sticks, and snails; a substance which the French call tuf. This goes to a considerable depth, and lies upon the limestone. As we approach the mountain, the pudding stone and tuf give place to the living rock.

Montferrier is so completely covered with houses, that it would be vain to seek a crater; but, considering its conical form, and the volcanic substances of which it is composed, I can readily conceive it to have been once a burning mountain.

In the vicinity of Montpellier, calcareous rocks, charged with marine productions, universally prevail, and are usually covered with either sand or clay. The clay being sometimes interspersed with calcareous matter and pyrites, the latter decomposes; in

consequence of which, its acid uniting with the calcareous matter, forms a selenite, whilst its iron gives a colour to the marle. If no calcareous matter is at hand, the acid set at liberty forms alum with the clay.

In the Cevennes, not far distant from Montpellier, mines and minerals abound, some rich in copper, others in lead and iron, but few which carry tin. One of these, a lode of about three feet thick, is so poor as not to pay expences; it produces iron, tin, and lead. In this mine, M. Chaptal, professor of chemistry, and inspector of the mines, tried an experiment which may be highly interesting to the naturalist, if not to the adventurer in mines, by submitting to a fiery trial many hundred weight, if not tons, of quartz and granite, taken contiguous to the walls of the lode: the issue was the production of tin, lead, and iron; although no eye could distinguish the least appearance of these metals, previous to their being committed to the furnace.

From this gentleman I obtained a substance which had been lately discovered in
all

all the auriferous streams in France; a substance which has certainly a strong affinity to iron, yet differs essentially from it. It is in the form of sand, is attracted by the magnet, and makes Prussian blue; but it is more obstinate in the fire than platinum, having never yet been fused in the strongest furnace. It is, moreover, insoluble in acids without heat, gives no inflammable air, and has never yet been calcined by any acid; besides which, its specific gravity is to iron as eleven to nine. From all these properties, we may at least venture to suspect, that this newly discovered substance is a modification of iron.

To a man who is devoted to the sciences, no residence can be more delightful than Montpellier. Is he fond of chemistry? in M. Chaptal he will find a sagacious guide, well qualified to conduct him in his pursuits, and to assist him in following nature as far as the most knowing have been able to trace her steps. The Abbé Bertholon will explain to him the principles of natural philosophy, with a clearness and elegance of expression peculiar to himself; and with an apparatus, perhaps the

best in Europe, will demonstrate the truth of those principles by well chosen and by the best conducted experiments. For botany, he can no where find a more able professor than Dr. Gouan. The lectures in every science are free for all the world; it being a maxim with the French, that wisdom should open wide her gates, and, without distinction, receive all who wish to enter.

During my progress through the vineyards, I observed that vines are every where valued in proportion to their age. The expence attending the plantation and cultivation of a new vineyard is so great, that upon a good soil, and in situations easy of access, corn is a more profitable produce.

The best wine was sold in this vicinity last autumn for one halfpenny a quart, and wine for brandy was much cheaper. The abundance was so great, and the demand so disproportionate, that they were obliged to distil the major part of their wines for brandy. Most of this will be smuggled into England. From the port of Cette alone, last year, there went upon this trade thirty-two vessels, which, at three hundred
tons

tons each, a ton containing two hundred and fifty-two gallons, makes upwards of two million four hundred thousand gallons; and the duty upon this, at nine shillings and six pence a gallon, would have been one million one hundred and forty thousand pounds. All this, and much more, was lost to the revenue, by the absurd practice of laying on such heavy duties. It is much to be lamented, that the well known operation of lowering the duties upon tea, has not opened the eyes of Europe upon this subject, but more especially those of our government in England. We have indeed lowered the duty upon brandy to five shillings, yet whilst it can be purchased in France for fifteen pence a gallon, unless we sink the duty much lower than we have already sunk it, the smuggler, with all his losses, will contrive to make a living profit.

Thirty gallons of wine produce five gallons of brandy; and this quantity in the vineyards last year (1785) cost only fifty sols, or about two shillings.

France is said to contain one hundred millions of acres, of which they reckon
that

that little more than one-third is in a state of cultivation; of this portion something more than fifteen hundred thousand acres are occupied by vineyards. If we allow their population to be five and twenty millions, we shall have four acres for each person.

As every thing which relates to their finance is likely to be new modelled, I need say little on that subject. Few countries stand in greater need of a reform, yet not only from the exemptions claimed by the nobles and the clergy, but from the privileges retained by many of the provinces at the time of their union to the rest, it will require either a strong hand, or most propitious circumstances, to accomplish this arduous undertaking. A nobleman of Berry told me, that on one side of a rivulet which flows by his chateau, salt is sold at forty sols a bushel, and on the other at forty livres, that is, at twenty times as much; in consequence of this, no less than two thousand troops of horse and foot were stationed on its banks to check the smugglers. The farm of salt was fifty-four millions of livres.

The

The whole revenue being twenty-five millions sterling, each person pays twenty shillings annually to the state for its protection. If we reckon the revenue of England at fifteen millions, and the population at seven and an half, then each person will pay forty shillings. The people in France, it is true, have paid less in proportion to their numbers than the English, yet they have suffered more than in the same proportion from the tyranny, vexations, and oppression of the farmers general, to whom they have been often sold.

The price of labour, taking the average of France, may be considered as two and twenty sols, or eleven pence per day for men, and ten sols for women, employed in manufactures; yet a good weaver, working eighteen hours a day, will earn three livres ten sols for himself and boy; shearmen will get two livres a day; spinning women four livres a month, and their board, deducting holidays; carpenters and masons, twenty-four sols, and two meals a day. In husbandry, the men get in winter from ten to fourteen sols a day, with a soup at noon; but in summer, from twenty to twenty-six sols,

sols, and two meals a day. The women have half as much.

Conversing with gentlemen of the medical profession in France, I see clearly that they have not made the same advancement in the science of medicine as gentlemen who have been educated at Edinburgh. The French are fond of Boerhaave, and so devoted to Hippocrates, that I am persuaded, in the case of fevers, they often, whilst looking for the crisis, lose the patient. They have almost universally a dread of the antimonial preparations; and when they venture to give the tartar emetic, it is in so small a dose as seldom to do much good. In the year 1566, the parliament of Paris forbade the use of antimony; and, although in 1624, this prohibition was reversed, the fear which had been excited and kept up for more than half a century, continued to operate against this powerful medicine. Whilst in Germany and England the science has been advancing with the most rapid progress, the French physicians seem to have been creeping into day with all the timidity of doubt. One obvious reason may be assigned for this: with us the practice of
medicine

medicine leads to wealth and honor, whereas in France it leads to neither; the fees are contemptible, and, excepting in Paris, the profession is despised.

On the sixth of April I left Montpellier at five in the morning, with a volantier of Barcelona, having previously agreed with him for the use of his valantè. The common price is six livres a day, but a young traveller must not be offended if the volantier should ask twelve, and close the agreement with him at nine. In this little light machine, with one good mule, you travel eight or ten leagues a day.

From Montpellier to Pezenas is eight leagues. The soil is sandy. The rock is limestone. The fields are open, and produce corn, wine, and oil. At Pezenas are to be seen the extensive ruins of a castle, which belonged to the Montmorency family. This strong fortress was hewn out of the rock on which it stands, and appears to have been complicated and full of art. The walls are lofty, and about eight feet in thickness. The rock, which is perpendicular, is a mass of shells, such as turbinæ, oysters, cockles, with a calcareous cement.

From

From hence the circumjacent plain, decked with luxuriant verdure, and shut in by rugged mountains, affords a most delightful prospect.

The next day we dined at Beziers, a city into which the canal of Languedoc is constantly conveying the wealth which flows from agriculture. Here the corn, the wine, the brandy, the olives, and the oil of a country formerly beyond the reach of commerce, find a ready market; and from hence all that tract of country is supplied, at a small expence of carriage, with the productions of distant nations.

Between Pezenas and Beziers, but nearer to the former, there is a stratum of pudding stone, of which the charge is hard blue schist, retaining the angles and the edges, yet sparingly scattered in a calcareous cement. Nearer to Beziers the limestone carries turbinæ, cockles, muscles, oysters, and scallops, deeply indented, and well defined.

In the afternoon we came early to Narbonne, having travelled eight leagues and an half this day. The leagues are of an uncertain

uncertain length, some about three miles, others four.

All the way from Beziers we traverse a rich country, and corn fields, shaded with vines, olives, mulberries, and almonds, forming at every step the most enchanting views.

At Narbonne there is a little stream, which, by the industry of the inhabitants, proves to them a more certain source of wealth than if its sands were gold.

This stream empties itself into a canal of more than half a mile in length, by the side of which they have extensive gardens, watered from it by hydraulical machines of remarkable simplicity.

They consist of a vertical wheel of twenty feet diameter, on the circumference of which are fixed a number of little boxes, or square buckets, to raise the water out of a well, communicating with the canal below, and empty it into a reservoir above, placed by the side of the wheel. These buckets have a lateral orifice to receive and to discharge the water. The axis of this wheel is embraced by four small beams, crossing each other at right angles, tapering

tapering at the extremities, and forming eight little arms. This wheel is near the centre of the horse walk, contiguous to the vertical axis, into the top of which the horse beam is fixed; but near the bottom it is embraced by four little beams, forming eight arms similar to those above described, on the axis of the water wheel. As the mule, which they use, goes round, these horizontal arms, supplying the place of cogs, take hold, each in succession, of those arms which are fixed on the axis of the water wheel, and keep it in rotation.

This machine, than which nothing can be cheaper, throws up a great quantity of water, yet undoubtedly it has two defects: the first is, that part of the water runs out of the buckets and falls back into the well after it has been raised nearly to the level of the reservoir; the second is, that a considerable proportion of the water to be discharged is raised higher than the reservoir, and falls into it only at the moment when the bucket is at the highest point of the circle, and ready to descend.

Both these defects might be remedied with

with ease, by leaving these square buckets open at one end, making them swing on a pivot fixed a little above their centre of gravity, and placing the trough of the reservoir in such a position as to stop their progress whilst perpendicular, make them turn upon their pivot, and so discharge their contents.

Fr
irrigation
agriculture

From the reservoir the water is conveyed by channels to every part of the garden; these have divisions and subdivisions or beds, some large, others very small, separated from each other by little channels, into which a boy with his shovel or his hoe directs the water, first into the most distant trenches, and successively to all the rest, till all the beds and trenches have been either covered or filled with water.

Nothing can surpass the luxuriance of their crops, nor the activity of those who are here engaged in the cultivation of the soil.

In this delightful walk, taking notice of some bees who were returning loaded to the hive, I recollected that Narbonne was famous for its honey, and therefore deter-

mined to taste it before I left the city. For this purpose I called at an apothecary's, who is reported to keep the best and to sell the most. His name is Dartiguelongue. The honey which he produced was delicate in its flavour, and beautifully white. This at Narbonne he sells at fifteen pence a pound, and when it is for England, he consigns it to a merchant at Cette.

The day following we travelled eleven leagues and an half, to Perpignan, the last city of any consequence in France. It is said to be well fortified, but of that I can form no judgment.

The soil all the way is sandy. The rock is calcareous, and many of the mountains are covered, even to their summits, with vast masses of limestone which have rolled.

The whole of the Roussillon is rich, and highly cultivated, even to the foot of the Pyrenees, abounding with corn, and wine, and oil, and silk, all of the best quality. The bleak and rugged mountains before us, at the distance of about three or four leagues, form a striking contrast with the rich valley which they command. Even these

these mountains are not suffered to remain uncultivated, but to a considerable height they feel the influence of increasing capitals, enriched by the growing wealth of the more fertile plain. Winding up through the gorges of the mountains, you see vines and olives flourish in every spot where industry can place them; and, wherever the plough can go, you admire the luxuriance of the corn.

The views all the way up the Pyrenees are beautiful. As you approach their summit, Belgarde presents itself, seated on a mountain eminent above the rest, and commanding this pass for a great extent. This fortress, the last in the French dominions, is more remarkable for strength than beauty.

All through the Roussillon, it is striking to see the people carrying earth in little baskets on their heads, for want of wheelbarrows. For the prevalence of this strange practice I can assign no cause, unless it be taken from the mountains, where no better mode of conveying earth up the steep ascent can be devised. Men are every where more inclined to imitation than to

the fatigue of thinking, or of seeking for new inventions.

The ploughs they use are suited to the soil, and similar to those described already in coming up from the Rhone.

In this country you dine for two livres at the table d'Hôte, and sup for forty-five sols, including bread, wine, and bed.

livres
smugglers
As you approach the borders, the officers of the douane become more numerous, and, unless well fed, most impertinent and troublesome. Notwithstanding their numbers and their vigilance, the contraband trade is very brisk. They reckon more than fifteen hundred smugglers in the Pyrenees; men of desperate resolution, who, knowing the cruel punishments to which they shall be condemned if taken, travel well armed, and generally in strong parties. A military force is sometimes sent against them, but to little purpose, as neither party is ever eager to engage. The smugglers, strangers to ambition, and little influenced by the thirst of military fame, without reluctance quit the field; and, unless when their superiority is manifest and great, think only of securing their retreat; whilst
the

the soldier, regarding this service as both dangerous and disgraceful, has no inclination to the attack.

When these daring adventurers have the misfortune to be taken, some of them are hanged, some are broken upon the wheel, and some are burnt alive. How shocking to humanity, that governments by their bad policy should lay such snares for men! how easy would it be, by a different system of taxation, to save these lives, to avoid these cruelties, to employ in profitable labour both him who is engaged in smuggling, and those who are paid for watching him, to open a free communication with all the world, and thereby to cherish and promote the industry, the wealth, the happiness of every commercial nation upon earth. As long as the governments of Europe shall continue to foment the subsisting jealousies of trade, and, by heavy duties, to hold forth high premiums to the smuggler, each must suffer in its proportion, each will be checked and restrained in the progress of its industry and wealth, each will abound with unprofitable subjects, and not one of them will be able to enforce a due obser-

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social

trade
barriers

vation of the laws. It is much to be lamented, when light is every where diffused, and when the eyes of Europe seem open to receive it, that light should be diffused in vain, and that so little should have been done by any nation to break those fetters, which ignorance, in the dark ages of feudal anarchy, every where imposed upon commerce.

J O U R N E Y

FROM THE

ENTRANCE OF SPAIN TO BARCELONA.

NO one, who has not himself experienced it, can conceive the satisfaction and delight with which a traveller looks down upon a country into which, for the first time, he is about to enter. Every thing attracts his notice, and his attention is pleasingly engaged by a rich variety of forms and productions, of manners and of men, with which he had been unacquainted; and which, in proportion as he values knowledge, will at every step increase his treasure. The face of the country, the vegetable tribes, the animals, all are new, or at least have something new to him; and even those with which he is most familiar,

from peculiarities for which they are indebted to the soil, or to the climate, strike him with new beauties; or, should they have no claim to beauty, at least they have to him the charms of novelty.

Upon my first entrance into Spain, after I had cast my eyes around to catch a general view of the country immediately before me, my attention was soon taken up with a phenomenon, which at the time was new to me. In ascending the Pyrenees, after I had lost sight of the limestone, I saw nothing but schist to the very summit of these mountains; and pleased myself, as I looked back upon the country which I had left behind me, to see how much it was indebted to this happy mixture of the limestone and the schist for its luxuriant crops. These rocks, elevated to the highest regions, exposed to the joint action of frost and rain, broken to shivers and reduced to powder, driven by winds, or hurried down by torrents, the mouldering schist producing clay, the limestone its calcareous earth, and each of these contributing the sand which it contained, unite their treasures to enrich all the country
below

below them with a never-failing supply of marl.

Thus far I met with nothing to surprise me; but, after I had passed the summit of the mountains, and having entered Spain, began descending to the south, expecting to meet more enchanting scenes, more luxuriant crops, and signs of greater wealth, the face of the country immediately before me appeared desolate and barren, without one cheerful spot in view, on which the mind could rest.

I must own I was at first inclined to attribute this dismal aspect to their want of industry, to some vice in their government, or to some error in their political œconomy; but, upon examination, I soon discovered the real cause of this barrenness, in the hungry nature of the soil, and the want of those two inestimable feeders of vegetation, the limestone and the schist, which near the summit are seen only to the north; for the moment you begin descending to the south, the rock changes, and you find the granite.

This circumstance is not peculiar to the Pyrenees; it is observed on other lofty chains

chains of mountains, and, as highly worthy of attention, may hereafter call for a particular discussion. The soil, which arises from the decomposition of granite, is not friendly to vegetation; for although it contains all the component parts of marble, yet the sand predominates, and the clay is in such small proportion, that the rains and dew contribute little to nutrition, passing quickly through the sand, or being soon evaporated, and lost in air. The proportion of these ingredients, which has been found most productive, is to have equal parts of clay and of calcareous earth, with one quarter of the whole a clean silicious sand. This proportion has been ascertained by the experiments of M. Tillet, as may be seen in the memoirs of the academy of sciences for the year 1772.

It is impossible to pass the Pyrenees without admiring the wisdom of the treaty, A. D. 1660, to which they have given name, as having fixed the most natural of all boundaries, the ocean alone excepted, between two great commercial nations. There was a period when rivers made the most obvious

obvious limits of an empire ; but in a state of civilization, these change their nature, and are considered by all nations as the most valuable parts of their possessions.

Whereas the summits of mountains, as abounding with passes easy of defence, form a strong barrier against a powerful neighbour, and a barrier which is naturally determinated by the parting of the waters ; and these summits being little susceptible of cultivation, leave a convenient space between the profitable possessions of the two adjoining nations.

The only useful vegetable productions of these high mountains are the ilex, and the cork tree ; the latter very profitable on account of its bark.

When these are fifteen years old, they begin to be productive ; yet not for the market, this maiden bark being only fit for fuel. At the end of eight years more, the bark improves, but does not arrive at its perfection till the third period ; after which, for one hundred and fifty years, it yields a marketable commodity every ten years. The season for barking is in July.

or

or August, when they take special care not to wound the inner bark.

From Perpignan to Junquera, a village of six hundred and twenty-seven souls, and the first you meet with after you enter Spain, is seven leagues, or four French posts.

Here the inns begin to exhibit their wretchedness. No bedsteads, but only three boards laid upon trestles to support a mattrafs; no bed curtains; no glass in the windows.

It is curious to see the peasants exercise their skill in drinking without touching the mouth of the bottle with their lips; and the height from which they let the liquid fall in one continued stream, without either missing their aim or spilling a single drop, is most surprising. For this purpose, the orifice of the spout is small, and from their infancy they learn to swallow with their mouths wide open.

On the tenth of April, early in the morning, we left Junquera, passing for a considerable way by the side of a rivulet, which in winter is a raging torrent. The soil, as
might

might be well expected, is hungry sand. The cultivated land is covered with vines, with olives, and with rye; the uncultivated abounds in cork trees. At the feet of the Pyrenees we find an extensive valley, every where shut in by mountains, excepting only a small opening to the sea, which is near Castillon de Empurias, in the Bay of Roses. In this extensive plain, or rather basin, which, as we look down upon it, seems flat and level, are many hills, some rising bold, some gently swelling, and covered with various kinds of soil, but chiefly with decomposed granite, which from local circumstances has acquired more than its due proportion of clay, and thereby rendered the barren quartz exceedingly productive.

From Junquera we have three leagues to Figueras, a town of four thousand six hundred and forty souls, where the Spaniards are now erecting a fortress, supposed to be impregnable: of its strength I am not qualified to judge; but for beauty I cannot conceive any thing to go beyond it. It contains quarters for one hundred and fifty companies of infantry, with five hundred horse;

horse; apartments for sixty officers, each with a kitchen, a dining room, and two spacious bed rooms; one long range of magazines for provisions, and four for powder; all upon a great scale, and highly finished. These works are made bomb proof. To supply the garrison with water, there is a capacious reservoir under the parade, formed in the quarry from whence was taken all the stone for these extensive buildings. The glacis, in most part of the fortification, is formed of the living rock, and the whole is protected by proper bastions. It is said, twelve thousand men will be sufficient to defend these works. At present there is a hill which commands the fort, but this the patient and persevering industry of Spaniards will certainly remove, or at least reduce below the level of their works.

It would be difficult to ascertain how much labour has been lost in the establishment of this strong hold; but we may venture to affirm, on the authority of those who are competent to judge, that had the same sums been expended in the cultivation of the soil, in the establishment of

farms, in making canals, and mending roads, to invite strangers into Spain, instead of building fortifications to keep them out, the face of the whole country had been changed, not merely in point of beauty, but of strength. The folly of all offensive wars begins to be understood in Europe, but more especially in France; and as for defensive war, the resistance of America, by its successful issue, and that of Corsica, which, although not successful, cost the French five times more than the value of the conquest, prove that a country tolerably strong in itself, and well defended by its inhabitants, needs no fortification to repel invaders.

Extensive fortifications cost immense sums to erect, and so much to keep them in repair, that they are commonly suffered to decay. Every such fortress requires an army to defend it, and when the moment of trial comes, the whole may depend on the weakness or treachery of a commander, and, instead of a defence to the country, may afford a lodgment to the enemy. If an able man happens to command, admitting the country to be both well peopled and
well

well governed, may not more be expected from him in the field than in the fortrefs? The most obstinate resistance the Romans met with was from a city that had no walls. In a discourse of Baron Hertzberg not long since published, we may see what was the opinion of the late king of Prussia on this subject; for, whilst he expended trifling sums on his fortifications, he was at a vast expence in promoting agriculture and manufactures in his dominions; having, in the space of a few years, built five hundred and thirty-nine villages, and established in them forty-two thousand six hundred and nine families, on the banks of the Oder, the Havel, and the Elbe; besides three thousand families on the Netz and Warthe.

Fortifications are only needful for the maintainance of usurped dominion, or to protect the borders of a kingdom from the incursions of a barbarous nation, whose object is to plunder.

The price of provisions at Figueras is remarkable: beef and bread are each about three halfpence sterling per pound, troy weight, but mutton is nine pence. The
reason

reason of this disparity is, that they plough with oxen, and have few sheep.

Between this town and the Col de Oriol, the rock, wherever it appears, is limestone.

From Figueras to Gerona is seven leagues. About half way between these places, we pass over a high mountain, called la Cuesta Regia; in ascending which we find a base of pudding stone, whose charge is smooth, rounded, silicious gravel, with a calcareous cement; the top and all the middle region is schist; but in descending near the bottom, the same pudding stone appears again; from which I conclude that this kind of rock pervades the mountain, and forms its base. This phænomenon is worthy of attention, and deserves a more minute investigation and description than a hasty traveller can bestow upon it.

The situation of Gerona is delightful; on a declivity, looking to the S. W. and fed by a rich well watered valley, which is open to the meridian sun, but bounded to the North and to the East, and sheltered

by high mountains. The whole city seems to be built of the pudding stone.

The soil is sand and clay, productive of all kinds of grain; such as beans, peas, lupines, wheat, and barley, with saintfoin and clover. This land they either dig with tridents or three pronged forks, and till with oxen and such ploughs as I have before described, with this difference, that they have only one handle, and instead of pins, they have two iron wings fixed to the share, extending beyond the heel, to supply in some measure the place of mould-boards.

All the way to Mataró, the soil, and even the sand of the sea shore, is nothing but the quartz and mica of decomposed granite; which, when not robbed of its clay, is made productive.

Nothing is more common than to jump at a conclusion; but if, without subjecting myself to such a charge, I might venture to hazard a conjecture, I should be inclined to think, that wherever vitrescent sand appears, whether on the sea shore, or on calcareous mountains, it comes from granite.

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After having travelled four leagues and an half from Gerona, we arrived at Grannotta, where we stopped to dine. Within three leagues and an half of Calella, the face of the country changes; for here, leaving the valley, we ascend once more the mountains, which, as I expected, are granite. This variety is pleasing, for, although they are scarcely susceptible of cultivation, except for vines, nature has by no means neglected them, but with more than common liberality has clothed them with perpetual verdure, and given them in great abundance the elegant arbutus, with a rich variety of flowering shrubs and aromatic herbs.

Having past these ever fragrant mountains, we descend again into a valley, which is protected from the incroachments of the sea by lofty cliffs. In this valley we cross a river, which shews the nature of the country through which it flows; for, although at present it contains little water, and may be forded without danger, yet, after hasty showers, it rages with ungovernable fury, and carries every thing before it. The valley being flat, and the soil,

to a considerable depth sharp sand, without any natural cohesion, the torrents, unconfined by banks, have widened their channel to the extent of near a quarter of a mile. This sand is evidently derived from granite, freed perfectly from clay by constant washing.

Having passed the river, not far distant from its mouth we ascended a hill, from whose summit we looked down upon a sea coast, where all nature wears a smiling aspect. Throughout the whole tract of country we left behind us, the vines had not begun to bud, and the birds were silent on the mountains; but here the vines shewed long branches with blossoms and young fruit, whilst the birds seemed to vie with each other, which should charm the ear with most delightful melody. The little hills were covered with vines and olives, and the sea seemed all alive with fishing boats. From this delightful spot numerous villages appear as far as the eye can reach.

In one of these, *Calella*, which, according to the genius of the Spanish language, is pronounced Callelia, we took up our lodging

lodging for the night. It has eight hundred and eighty-six souls, and employs near fifty fishing boats.

The next morning, when we set forward on our journey, about five, I was not a little struck to see children, with old men and women, each carrying a little basket, watching, precisely as in the south of France, for the dung of mules and horses which were passing by. This practice, whilst it implies poverty of soil, evidently proves that for industry at least they deserve highly to be praised.

The conduct of farmers in the west of England is the reverse of this. Their dependance for manure being wholly on sand and weeds, the produce of the ocean, they neglect the more obvious source of plenty to be derived from cattle. They set a proper value upon what the Catalans despise; but, in return, these are careful to collect the treasure which the others suffer to be lost; whereas the true wisdom would be to avail themselves of both.

In going from Calella to Mataro, four leagues, the way is wholly by the sea side;

the first part of it over granite rocks, the latter on the beach.

Mataro, a flourishing sea port of nine thousand six hundred and seventy-nine souls, has, for its loyalty and attachment to the present family, been made a city. Here are three convents for men, and two for women, with one general hospital. It gives employment to nineteen looms, sixteen stocking frames, makes much lace, prints linens for America, and is distinguished for the excellence of its red wine. Scarcely one idle person is to be seen. It is however to be lamented, that so much of their labour should be lost by those who are engaged in weaving ribbons: instead of making many at the same time, all their looms are single. If this proceeds from ignorance, government should take care to have them better taught; if it is the effect of prejudice, they should be allured by premiums to become greater œconomists of time.

All through Catalonia you admire at every step the industry of the inhabitants, who, working early and late, give fertility to a soil which naturally, except for vines,

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is most unproductive ; but when you come to Mataro, you are perfectly enchanted : the farms are so many gardens, divided every where into beds of about four feet wide, with a channel for the passage of the water to each bed. Every farm has its Noria, a species of chain pump, which, from its extreme simplicity, seems to have been the invention of the most remote antiquity. By means of this machine they every morning draw a sufficient quantity of water from the well for the service of the day, and in the evening distribute it to every quarter, according to the nature of their crops. The reservoirs into which they raise the water are about twenty, thirty, or even forty feet square, and three feet high above the surface of the ground, with a stone cope on the wall, declining to the water, for the women to wash and beat their clothes upon. The soil is so light, being nothing but sand from the decomposition of the granite, that they plough with two oxen or one horse, or even with a mule ; yet, by the assistance of the water, it is made fertile, and produces on the same spot of ground corn, wine, oranges, and

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olives.

olives. The American aloe is here planted as a fence.

When we drew near to Barcelona, we had to cross a river, in which we counted fifty felons, clothed in green, and employed in clearing the channel, whilst centinels stationed at convenient distances prevented their escape.

It is curious to observe this mark of contempt for the Moors, in clothing their vilest criminals, and even their hangman, in green, the sacred colour of Mahometans, more especially in Africa.

All the way from Montpellier to Belgarde, the road is wide, and kept in excellent repair; but from the entrance into Spain to within about two leagues of Barcelona nothing seems to have been done since the foundation of the world, either to expedite the progress of a traveller, or even to secure his safety, should he have occasion to pass this way. Although to an Englishman these roads must appear detestable, yet if we look back thirty or forty years, to the time when most of our provincial roads were in the same condition, and reflect how much has been done within that

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Moors,
sacred

period, we may hope that the industry of Catalans will not overlook an object of so great importance; and that our children who visit those delightful regions will pass through them with less hazard and more comfort than their fathers did before them.

The vernal sun, south of the Pyrenees, is reviving to the traveller; but the season of lent has one circumstance attending it, which, in a catholic country, is not perfectly agreeable, nor indeed conducive to his health: for, during these forty days of abstinence, he must learn to live on fish and vegetables; because, although in Spain they have now four days in the week, in which, by special indulgence, they may eat flesh, few people are inclined to use this privilege.

The accommodations, if not in lent, are more than tolerable, and cheaper than either in England or in France. You pay for a volanté, with a good mule, attended by a guide, five shillings a day, without further charge; fifteen pence for dinner, without any limitation in quantity of wine; twenty pence for supper and your bed; and,

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and, in the morning, two pence for chocolate. These being the regular and stated prices, leave no room for disputing with the landlord, as the most patient are sometimes obliged to do in France.

In all this country oxen draw heavy loads on the high way, and move with spirit.

B A R C E L O N A.

IN this journey I made the greater speed, in order to spend the holy week at Barcelona; and I have no reason to repent the pains I took to be present at their solemnities. No citizens perhaps bestow so much expence, and no magistrates can pay more attention, than the citizens and magistrates of Barcelona, in the processions of the holy week.

On Wednesday, the 12th of April, I arrived, and the next morning early I visited the churches, to see the preparations they had made for the entertainment of the evening, in which they were to represent the last sufferings of the Redeemer. In
every

every church I found two images, as large as life, distinguished from the rest as being stationary, and the more immediate objects of their devotion; the one representing Christ as taken from the cross, the other the Virgin in all her best attire, pierced by seven swords, and leaning over the recumbent body of her son. Behind these images, a theatre with colonades, supporting a multitude of wax tapers, dazzled the sight, whilst the ear was charmed by the harmonious chaunting of the choir.

More than a hundred thousand persons all the morning crowded the streets, hurrying from church to church to express the warmth of their zeal, and the fervor of their devotion, by bowing themselves in each, and kissing the feet of the most revered image. Most of the spectators were natives of the city, but many upon such occasions resort to Barcelona from the adjacent villages, and some from distant provinces.

Towards the close of day the pageant appeared, moving with slow and solemn pace along the streets, and conducted with the most perfect regularity. The last supper

per of Christ with his disciples, the treachery of Judas, attended by the priests, together with the guards, the flagellation, the crucifixion, the taking from the cross, the anointing of the body, and the burial, with every transaction of the closing scene, and the events subsequent to the passion of our Lord, were represented by images large as life, placed in proper order on lofty stages, many of which were elegant, and all as highly ornamented as carving and gilding, rich silks, brocades, and velvets, with curious embroidery, all executed by their most skilful artists, could render them. No expence was spared either in the materials, the workmanship, or the wax lights, which, with the most splendid profusion, were consumed upon this occasion. Each of these stages was supported on the shoulders of six men, who were completely hid by a covering of black velvet hanging round the margin of the stage, and reaching nearly to the ground. This procession was preceded by Roman centurions clothed in their proper armour, and the soldiers of the garrison brought up the rear. The intermediate space was occupied by the groups

groups of images above described, attended by eight hundred burgessees, clothed in black buckram, with flowing trains, each carrying a flambeau in his hand. Besides these, one hundred and fourscore penitents engaged my more particular attention. Like the former, they carried each a flambeau, but their dress was singular, somewhat resembling that of the blue-coat boys of Christ's hospital in London, being a jacket and coat in one, reaching to their heels, made of dark brown shalloon, with a bonnet on their head, like what is called a fool's cap, being a cone covering the head and face completely, and having holes for the eyes. The design of this peculiar form is to conceal the penitents, and to spare their blushes. These were followed by twenty others, who, either from remorse of conscience, or having been guilty of more atrocious crimes, or for hire, or with the most benevolent intention of adding to the common fund of merit for the service of the church, walked in the procession bare footed, dragging heavy chains, and bearing large crosses on their shoulders. Their penance was severe; but, for their
comfort,

comfort, they had assigned to them the post of honour ; for immediately after them followed the sacred corpse placed in a glass coffin, and attended by twenty-five priests, dressed in their richest robes. Near the body a well chosen band with hautboys, clarinets, French horns, and flutes, played the softest and most solemn music. This part of the procession wanted nothing to heighten the effect. I am persuaded that every one who had a soul for harmony felt the starting tear.

In the processions of the present day, practices which had crept in when chivalry prevailed, with all its wild conceits, practices inconsistent with sound morals, and offensive to humanity, are no longer to be seen. The civil magistrate, interposing his authority, has forbidden, under the severest penalties, abominations which, as the genuine offspring of vice, could not have ventured to appear, even in the darkest ages, unless in the disguise and under the sanction of religion. The adulterer, if he will court the affections of his mistress, no longer permitted publicly to avow his passion, to scourge himself in her presence,
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and by the severity of his sufferings to excite her pity, must now seek the shade, and if he feels himself inclined to use the discipline, it must be where no human eye can see him. In these ages of superior knowledge and refinement, men look back with wonder at the strangely inconsistent conduct of their progenitors, when, ignorant of every thing but arms, they embraced and carried with them a religion whose influence they never felt, and the purity of whose precepts they did not understand. It was not in Spain only that superstition reared her throne, all Europe acknowledged her dominion, and in every nation in which the victorious banner of the Goths and Vandals was displayed, we have seen execrable vices cherished in the same breast which appeared to glow with fervid zeal for the glory of God, at least as far as could be testified by the most strict attention to the ceremonials of religion. All Europe is emerging from this state of Gothic ignorance, and Spain, although the last, it is to be hoped will not be the least enlightened.

When the pageant was over, the people retired

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retired quietly to their habitations; and although more than a hundred thousand persons had been assembled to view this spectacle, no accident of any kind was heard of. The day following, before eight in the morning, another procession of the same kind, but more elegant than the former, was conducted through the streets, and in the evening, a third, at which assisted all the nobles of Barcelona, each attended by two servants, and, in rotation, carrying a crucifix large as the life, and so heavy, that no one for any length of time could sustain the weight of it. The stages and the images were not the same which had been exhibited the preceding day, but represented all the same events. Every stage was completely occupied by images large as life, and surrounded by a border of open carved work superbly gilt; and the bearers, as in former instances, were hid by curtains of black velvet, richly embroidered. Two hundred penitents in grey attended as before. In each of these processions were many children, some not more than three years old, carrying little crosses, with each a flambeau in his hand. These are used in
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all processions, even in the middle of the day.

The different stages, with their groups of figures, belong to different bodies corporate, either of the nobles or artificers, and are ranged in the processions according to their right of precedency. These groups are called the mystery of the corporation. That of the French artificers is an *Ecce homo*, but for some reason the consul walks before it, attended only by the meanest subjects of his nation.

The succeeding day, at nine o'clock in the morning, when, as being Saturday, I had no expectation of such an event, the Resurrection was announced by bells ringing, drums beating, cannons firing, people shouting, colours flying, and, in a moment, all the signs of mourning were succeeded by tokens of the most frantic joy.

The processions were intermitted for several years, prohibited by government on account of abuses which had crept into them, and, in their place, the carnival was substituted, with the same licentious riot and confusion as I have described in Paris, and as all who have passed the carnival in

Italy have seen. But after the inhabitants of Barcelona, in the year 1774, had resisted the demands of government, requiring them to draft every fifth man for the army, like the other cities and provinces of Spain, the carnival was forbid, and the trade, which had been always brisk at this season, felt a loss, which made the citizens call loudly for the restoration of their processions.

After Easter they have one upon a smaller scale; about seventy priests, each with a lighted flambeau in his hand, preceded by a herald with his banner, carry the host, under a canopy of crimson velvet, to those who had not been well enough to receive it in the churches.

The streets of Barcelona are narrow and crooked, like those of all antient cities. The old Roman town may still be distinctly traced, occupying a small eminence in the centre of the present city, with one of its gates and some of its towers, well preserved. In this are many sarcophagi, altars, images, and inscriptions, with a temple of Neptune, all which have been well described by antiquarians. It was here
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that Ferdinand and Isabella received Columbus, returning from America, and from hence that navigator sailed on his second expedition, in the year 1493.

In visiting the churches of Barcelona, an observation is confirmed, which had occurred even in the most contemptible of the country villages south of the Pyrenees. It is evident that all their decorations were invented about the beginning of the sixteenth century, after the gold and silver of America had been brought to Spain, and every altar piece, with every column, shews that their improvement in taste did not keep pace with their increase of wealth. Riches came upon them by surprise, and found them unprepared to make a proper use of the abundant treasure. Hence even the composite and the Corinthian pillars are loaded with new ornaments, and whether fluted or contorted, they are entwined by ivy or by vines, and are almost hid by the multitude of angels fluttering round them, or by cherubs climbing up the branches; and the whole of this preposterous assemblage is covered with one glare of gold. The present generation is en-

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lightened, and their taste is much refined; yet they want resolution to reform abuses, and to strip off those ornaments to which the blind zeal and devotion of their forefathers have given sanction. One of their best writers has remonstrated, and his remonstrances have engaged the attention of government to make wise regulations for the future.

They have in this city an academy for the noble arts, open to all the world, in which all who attend are freely taught drawing, architecture, and sculpture, under the direction of D. Pedro Moles, and others, who, like him, excel in the branches they profess. For this purpose, they have seven spacious halls, furnished at the king's expence with tables, benches, lights, paper, pencils, drawings, models, clay, and living subjects; they assemble in the morning from ten to twelve, and in the evening from six to eight, in winter, and from eight to ten in summer.

This academy is well attended; I counted one night upwards of five hundred boys, many of whom were finishing designs, which shewed either superior genius
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or more than common application. It is not to be imagined that all these boys, or perhaps any of them, are destined to be painters: this was not the intention of government, much less of count Campomanes, who suggested the institution. Most, if not all these youths, are apprenticed to trades; and it is well imagined, that every other art may receive some assistance from this, whose peculiar property it is to excel in imitation, ^{such an institution is} ~~very~~ much wanted in England. Not only the sculptor, the architect, and the engineer, but the coach-maker, the cabinet-maker, the weaver, nay even the taylor and the haberdasher, may derive great advantages from that accuracy of sight, and that fertility of invention, which are acquired by the practice of drawing and designing.

D. Pedro Moles is an artist whose works have been universally admired for the beauty of his stroke, and the force of his expression. It is a pity that the graver was ever taken from his hand; he may perhaps be more usefully employed in superintending this academy, but, as an engraver, he would have acquired a more

lasting fame, and have made a better provision for his family.

One of the seven halls is fitted up as a nautical school, and is provided with every thing which is needful to teach the art of navigation. The students, who at present are only thirty-six, assemble every morning from eight to ten, and every evening from three to five. Since the first establishment of this useful seminary, they have sent out more than five hundred pilots, qualified to navigate a vessel to any quarter of the globe.

Equally well furnished with the preceding, and equally well conducted is the military academy, in which there are three magnificent apartments for the students to pursue their studies, from the first elements of the mathematics, to the higher branches of their profession.

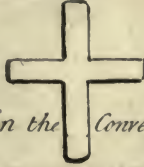
Besides these institutions for the instruction of such as are devoted to arts or arms, there are not wanting some of more general utility, accessible to all the citizens without distinction. These are a cabinet of natural history, and the public libraries, of which there are four; three general, and
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the other confined to medicine and surgery; the cabinet belongs to D. Jaime Salvador. From the reports of this collection, I had formed high expectations, but I must confess myself dissatisfied. Some thirty or forty years ago, it may have been worthy of attention, but the science itself, and the cabinets of the curious, are so much improved, that collections, which at remoter periods excited wonder, are in the present day justly regarded with cold indifference. The general libraries are those of the bishop's college, of the Carmelites, and of the Dominicans. This last I found most worthy of attention, as containing more modern books of value than either of the former. Among these, some of the most considerable were the Ruins of Palmira; Raphael's Heads, by Fidanza; Duhalde's China; Monumens de la Greece; Histoire genealogique de la Maison Royale de France, & des anciens Barons, par le P. Anselme; Antichita di Ercolano; Muratori Thesaur. vet. Inscriptionum; Numismata Vir. illust. ex Barbadicagente; Danubius Pannonico Mysicus. These may serve to shew that the collection is

not contemptible. In short, whatever studies a man may be desirous of pursuing, he will find in one or other of these libraries the best books, to which he may have access six hours every day, excepting holidays. In the convent of the Dominicans there is one apartment filled entirely with books prohibited by the inquisition, and, in order that no one may be tempted to peruse them, all the vacant spaces are filled with devils cracking human bones, it is to be supposed of heretics. Lest, however, this sight should not suffice to check a prying disposition, they are well secured by lock and key, and no one has access to these without a special licence.

In the cloister of the Dominicans there are more than five hundred records of sentences passed on heretics, containing their name, their age, their occupation, their place of abode, the time when they were condemned, and the event; whether the party were burnt in person or in effigy, or whether he recanted and was saved, not from the fire and the faggot, for then he might relapse, but from the flames of hell. Most of these were women. The first date is

A. D.



Barcelona in the Convent of the Dominicans.

*Oliver Boer. Trabajador. heretico. condenado en Persona, 27. de. October
de. 1566.*



Inquisitorial Mercy.

A. D. 1489, and the last, 1726. Under each inscription there is a portrait of the heretic, some half, others more than three parts, devoured by devils. I was so much struck with the fantastic forms which the painters had given to their dæmons and the strange attitudes of the heretics, that I could not resist my inclination to copy some of them when no one was walking in the cloister. Some time after this, sitting with one of the inquisitors, who did me the honour of a visit, he in a careless manner took up my memorandum book, and as chance would have it, opened precisely on the leaf which contained my drawings: I laughed; he coloured; but not one word escaped from either at the time. Fifteen months after this, when I returned to Barcelona, he smiled, and said, "You see that I can keep a secret, and that we are not strangers to principles of honour."

During my residence at Barcelona, I had an opportunity of seeing all the courts of the inquisition assembled in a grand procession to celebrate the feast of S. Pedro Martyr, their patron saint, in the church of St. Catharine of the Dominicans.

nicans. Happy had it been for christendom if all their festivals had been as innocent as this. It is, however, universally acknowledged, for the credit of the corps at Barcelona, that all its members are men of worth, and most of them distinguished for humanity.

Visiting the churches at all hours, whenever any service was performed, I made a party with some friends to hear a penitential service in the convent of St. Felipe Neri, on Friday evening of April 28. The first part of the Miserere was no sooner ended than the doors were shut, the lights were extinguished, and we remained in perfect darkness. At this moment, when the eye could no longer find an object to distract the mind, the attention was awakened by the voice of harmony, for the whole congregation joined in the Miserere, which they sung with pleasing solemnity; at first with soft and plaintive notes; but having laid bare their backs, and prepared them for the scourge, they all began nearly at the same instant to use the discipline, raising their voices, and quickening the time, increasing by degrees both in velocity and

and violence, scourging themselves with greater vehemence as they proceeded, and singing louder and harsher, till at the end of twenty minutes, all distinction of sound was lost, and the whole ended in one deep groan. Prepared as I had been to expect something terrible, yet this so far surpassed my expectation that my blood ran cold; and one of the company, not remarkable for sensibility of nerves, being thus taken by surprise, burst into tears.

This discipline is repeated every Friday in the year, oftener in Lent, and is their daily practice during the holy week. I was not at liberty to ask what advantage they derived, or what benefits they expected to receive from this severity; yet, from the prevalence of vice in Spain, I fear this practice has little if any tendency to reform their morals.

The hospicio, or house of industry for the poor next attracted my attention. This institution originated in the year 1582, much about the time when the poor began to occupy the serious attention of all the governments in Europe. With the house of industry is united the hospital of mercy, which,

which, in the year 1699, was put under the care of the nuns of St. Francis, called Monjas Terciarias de S. Francisco. The whole was reformed in 1772. In this establishment they provide for children of parents who are burthened with a numerous offspring, for beggars, and for other objects of distress. In the year 1784, they had 1466 paupers; the year following 1383; and, when I was there in 1785, the number was 1460, the average being fourteen hundred and thirty-six. Of this number, about one thousand are able to work, three hundred are idiots, and the rest are little children. The whole expence for them is about forty-eight thousand two hundred livres Catalan, or about five thousand one hundred and sixty-four pounds sterling per annum. The king allows for each pauper fourteen maravedis per day to purchase a ration of bread. These are equal to one penny sterling, or nearly so. The voluntary contribution amounts to about fifteen thousand livres Catalan, and the deficiency is made up by the bishop. The women and children are employed in knitting, spinning, and in making

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ing lace. The men card, comb, spin, and weave cotton, flax, and wool. The produce of their labour is contemptible, being at the rate only of one penny each per day, should we allow, which cannot be allowed in Spain, three hundred working days, and one thousand paupers fit to be employed. Yet this produce is greater in proportion than the average of our work-houses in England. Although no paupers can be either better clad, better fed, better attended, or better lodged, or can meet with greater tenderness when they are ill, they cannot readily forget their loss of liberty. All these comforts, therefore, are despised when compared with freedom, and few, besides the most decrepit, would remain within those walls if they could be permitted to beg their bread from door to door. This principle, however, is productive of much good; for most of the young men in Barcelona, of any worth or spirit, form themselves into clubs for mutual relief, in the same manner, and nearly upon the plan adopted by our friendly societies in England. These fraternities have each its

to whose protection it is recommended. They are upon the most respectable footing, and being well conducted, leave none but the most improvident and most worthless subjects to be disgraced by confinement among fools and madmen. Those who are able to work, but choose rather to live in idleness and vice, are left to the correction of the laws.

There is one house of correction, which is too remarkable to be passed over in silence. It embraces two objects; the first is the reformation of prostitutes and female thieves; the second, the correction of women who fail in their obligation to their husbands, and of those who either neglect or disgrace their families. The house for these purposes being divided into distinct portions, without any communication between them, the one is called *real casa de galera* and the other *real casa de correction*. For each of those, who are shut up in the former, the king allows seven deniers to purchase eighteen ounces of bread, and nine deniers, which is nearly one penny sterling, to procure meat. The fund for this arises from fines; but to aid this fund, the

the women are obliged to work as long as they can see. By their labour they earn about five shillings a month, half of which they have for themselves, whilst, of the other half, the alcaide or governor has one-tenth to stimulate his attention to his duty. These women, working thus from light to light, would earn much more were it not for the multitude of holidays. The ladies, who deserve more severe correction than their husbands, fathers, or other relatives can properly administer, are confined by the magistrates, for a term proportioned to their offences, in this *royal* mansion, or *casa real* de correccion. The relation, at whose suit they are taken into custody, pays three sueldos, or four pence halfpenny per day for their maintenance; and with this scanty provision they must be contented. Here they are compelled to work, and the produce of their labour is deposited for them till the time of their confinement is expired. The whole building will contain five hundred women; but at present there are only one hundred and thirteen. Among these are some ladies of condition, who are supposed to be visiting
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some distant friends. Here they receive bodily correction, when it is judged necessary for their reformation. This establishment is under the direction and government of the *regente de la audiencia*, assisted by the two senior criminal judges, with the alcaide and his attendants. One of these judges conducted me through the several apartments, and from him I received my information. Among other particulars, he told me, that they had then under discipline, a lady of fashion, accused of drunkenness, and of being imprudent in her conduct. As she was a widow, the party accusing was her brother-in-law, the marquis of —.

The judges of this court are universally acknowledged to be men of probity, and worthy of the high degree of confidence thus placed in them. One of them, Don Francisco de Zamora, to whom I am indebted for the most polite attentions, is a gentleman of indefatigable application, and of universal knowledge.

The *audiencia* mentioned above, although a modern institution, bears some resemblance to the courts of Westminster Hall;

Hall, and a still greater to the parliaments in France, having the administration of justice, civil and criminal, committed to it, with the government, both æconomical and political, of the whole province, like the ancient courts of all the feudal sovereigns. The captain general and governor of Catalonia is president of the audiencia, with a vote. This tribunal, which is supreme, and receives appeals, is divided into three courts, one criminal, the other two civil, and when united into one, æconomical.

In each of these are five judges. The kings of Arragon, and after them the sovereigns of the united empire of Castile and Arragon, were accustomed to appoint viceroys of Catalonia, till Philip V. in the year 1716, changed the government of this province, established the audiencia, and appointed his captain general to preside in it.

Besides these general courts, there is one established for commerce, which is again subdivided; of the subdivisions, one being judicial, determines differences between the merchants; the other has the government of all arts and manufactures.

The whole city of Barcelona is divided into five districts or wards, over each of which presides one of the five *alcaldes del crimen*, or judges of the criminal court of the *audiencia*, with his *promotor*, *escrivano*, *alguacil*, *portero*, and *alcaldes de barrio*, to determine, in the first instance, all causes both civil and criminal between the inhabitants, and to preserve the peace in their several wards. The *alcaldes de barrio*, of which each ward chooses annually eight, resemble our constables. But besides these two *alcaldes mayores* are conservators of the peace, and justices for the city at large.

The government of Barcelona, as far as relates to political œconomy, is committed to a court of twenty-four *regidores nobles*, or aldermen, four deputies from the commons, with authority to vote, and two syndics, the one called *procurador*, and the other *personero*. This court is subordinate to the *acuerdo*, or œconomical court, which is composed of the two civil courts, assisted by the *regente de la real audiencia*, and presided over by the captain general of the province.

There are three colleges of *escrivanos*;
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the first are called *escrivanos publicos*, or *escrivanos de número*, who are scriveners to make contracts and wills. The second are *escrivanos reales de la audiencia*, who are present in court to authenticate all transactions there; but who may, by special licence, make contracts also: of each of these the number is limited to forty. The third are improperly called *escrivanos*, being *procuradores*, that is, proctors, solicitors, attornies, or counsel, to solicit and to plead all causes in the courts of justice. In Catalan these are distinguished by the name of *notarios reales causidicos*, and although by law they are limited to thirty, it is impossible to confine them to that number, because of the multitude of causes which they have to plead. There are at present seventy-three of these, besides one hundred and ninety-nine advocates.

The multitude of causes does not arise in Catalonia, as in Wales, from any violence of temper, or litigious spirit in the inhabitants, but from the uncertainty of its laws. They have a peculiar code, called, *Constitutions of Catalonia*; but this being inadequate to their wants, the next in force is

the canon law; and, where that is silent, their ultimate resort is to the Justinian code.

The process is by written evidence, and the only parties visible in court are the judges and the pleaders, with the *relatores*, or readers of that evidence authenticated by the *escrivano*, in whose presence it was taken. For the assistance of the poor there is appointed a procurador, and also an abogado; the one to solicit, the other to plead their causes.

No hospital that I have seen upon the continent is so well administered as the general hospital of this city. It is peculiar in its attention to convalescents, for whom a separate habitation is provided, that after they are dismissed from the sick wards as cured of their diseases, they may have time to recruit their strength, before they are turned out to endure their accustomed hardships, and to get their bread by labour. Nothing can be more useful, nothing more humane, than this appendage. The numbers they received into this hospital were, in the year 1785, nine thousand two hundred and ninety-nine; and in 1786, six thousand

thousand four hundred and eighty-eight. In the former year they buried eight hundred and fifty-four; in the latter, nine hundred and twenty-six; which, upon the average, is nearly a ninth of those who enter; but then it must be considered, that many are put into public hospitals merely to save the expence of funerals.

With this hospital is united, under the same administration, an establishment for foundlings, sufficiently capacious for the city and its environs. The deserted children were five hundred and twenty-eight, on the average of the two last years, and of these two-thirds were buried; a proportion shocking to humanity, but the inevitable consequence of taking infants from the mother, and crowding them together in a city; more especially if, as in Barcelona, five children hang upon one nurse. It is much to be lamented, that they have not, like the French, recourse to the milk of goats; or, like the children in the Orphan Hospital in Dublin, learnt to use sucking bottles.

The boys on this foundation are bound apprentice when of a proper age; the girls,

when marriageable, are conducted in procession through the streets, and any young man who sees one whom he would choose for a wife is at liberty to mark her, which he does by throwing his handkerchief.

Besides these charitable foundations, there is in Barcelona an orphan hospital which I did not visit.

The inns are little inferior to those of the great towns in France. The table is well served, and supplied with plenty of good wine. The whole expence for lodging and board is only five livres French, or four shillings and two pence sterling per day.

Barcelona may be considered as divided either into districts or into parishes; the former being five, the latter eight, including the cathedral. In a circumference of four miles it contains at present ten thousand two hundred and sixty-seven houses, and twenty thousand one hundred and twenty-eight families, consisting of ninety-four thousand eight hundred and eighty persons.

The thriving condition of this city will appear

appear by exhibiting at one view the state of its population at different periods,

A. D. 1464,	the number of per-				
	sons was	-	-	40,000	
1657,	-	-	-	64,000	
1715,	-	-	-	37,000	
1759,	in 13,917 families,	-		69,585	
1778,	in 16,608 ditto	-		84,870	
1786,	in 20,128 ditto	-		94,880	

The falling off, in 1715, may be readily accounted for, by recollecting, that during the war of the succession, Barcelona was besieged three times, and taken twice, first by the English, then by the French. In these convulsions the migration was great, and the assassinations were innumerable.

If the returns which have been made to government are compared with the parochial returns of births and burials, we shall be inclined to suspect some inaccuracy in either one or both, unless we take into consideration the numbers of priests, soldiers, monks, and nuns, which make these proportions differ from those which have been found in other countries. The births, on the average of the two years, 1785

and 1786, were three thousand nine hundred and sixty-six; the burials four thousand one hundred and ninety-eight; the deaths exceeding annually the births by two hundred and thirty-one. This circumstance is not uncommon in great cities; but if we multiply the births by twenty-six, and the burials by thirty-six, and take the average between them, we shall have one hundred and twenty-seven thousand and ninety seven, which is thirty-two thousand two hundred and seventeen beyond the returns to government. It must be confessed, that the people have an interest to conceal their numbers, in order to lessen their contribution. This being the case, perhaps we should come nearer to the truth, if we should suppose the population of Barcelona comprehending^{ing} only those who are settled in a family way, at more than a hundred thousand souls. I shall however only state them according to the government returns.

Settled in families	-	-	94,880
Secular priests, and servants of			
the church	-	-	912
In 19 convents of monks	-	-	1,212
			In

In 18 convents of nuns, and		
3 of beatas	- -	654
In the general hospital, with		
foundlings	- -	2,597
In the work-houses	- -	1,438
In prisons, and house of cor-		
rection	- - -	337
In sanctuary at the cathedral,		
at present only	- -	8
In garrison, and military aca-		
demy	- - -	5,628
Officers of justice, and inqui-		
sitors	- - -	147
Clergy of St. Philip and others		157
Strangers on board of ships,		
and in the inns, &c.	-	3,440
<hr/>		
Total numbers in Barcelona	-	111,410

This account of the population of Barcelona I have from D. Francisco de Zamora, and it is confirmed by the captain-general; yet both acknowledge, that to obtain precision is almost impossible; and neither of them could give me the numbers confined in the prisons of the inquisition.

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The wealth which flows into Barcelona is not confined within its walls, but helps to increase the population of all the surrounding villages, which, in the compass of five leagues, are one hundred and five, all subject to its jurisdiction, and all partaking of that tranquillity which arises from energy in a well constituted government.

The industry which every where appears in Catalonia seems to act with concentrated energy in Barcelona. Early and late, not only is the hammer heard upon the anvil, but every artist is seen busily employed, each in his several way adding to the general stock.

Two considerable trades in Barcelona are the taylors and the shoemakers, who are employed in clothing the army, not only in Spain, but over the whole empire. It is curious to observe, that as Scotland is remarkable for breeding gardeners, Ireland chairmen, Switzerland soldiers, so Catalonia is distinguished all over Spain for shoemakers and taylors.

Amongst the more considerable trades are the silk-weavers, cutlers, armourers and braziers, carpenters, cabinet-makers,
 * turners,

turners, with fringe-makers and embroiderers. I was particularly struck with the gun-smiths, who appear not only numerous and diligent, but uncommonly dexterous in the handling of their tools. The turners are more than dexterous, making one foot upon occasion serve the office of a hand to guide the tool, or to fix the poppet-head. The carpenters work in a manner peculiar to this city. They have neither pit saw, hand saw, carpenter's adze, axe, nor hatchet: to slit a plank, they fix it in a vice and use a spring saw strained by a bow, for working which they require two men. At this we need not wonder much; yet, when we see two men employed with the same tool, that is, with a tool of the same form, but finer, to make either dove-tail joints for cabinets, or tenants for doors and sashes, we must be allowed to smile. If they wish to smooth a board, they let it incline upon two wooden tressels, and hew it across the grain with a cooper's adze, not reflecting that an elastic body cannot resist the stroke. It is by no means necessary that a mechanic should be able to explain the laws of motion, but what philosophers acquire

acquire by study he should learn by observation, and with him experience should supply the place of instinct, and supersede the use of abstract reasoning.

The chocolate grinders have a method of working peculiar to Spain, and much preferable to that which is used in England. Our grinders, depending altogether on muscular exertion, use only the muscles of one arm, and employ those muscles to the greatest disadvantage; whereas in Barcelona, the slab, instead of being flat and horizontal, is curved, forming the segment of a hollow cylinder, and is inclined to the horizon. The operator kneeling behind this, and leaning over it with a granite roller, which is something longer than the slab is wide, grinds the chocolate, using both his hands, and pressing it with the weight of his body, as well as by the exertion of his arms. This operator goes from house to house, because most families choose to have their chocolate ground at home. For the market they have a more expeditious method, and grind the chocolate much finer than it can be made by hand. For this purpose five rollers of polished

lished steel, fixed in a frame, and appearing like the spokes of a wheel, or the radii of a circle, yet each turning round upon its axis, are placed between two mill stones, of which one is immoveable, whilst the other with the rollers receives motion by communication, in common with two other mills of the same construction, from a cog-wheel below stairs, which is turned in the usual method by a mule. The nuts fall through hoppers to feed the mills. In this manner one man will grind three hundred weight of chocolate every day.

The manufacturers of silk, cotton, and wool, adopt all the modern improvements. It is now about a twelvemonth since M. Pontet brought to them from France a model of a machine for spinning cotton better than it can be spun by hand, something like that which was invented by Mr. Arkwright. As this machine is well known in England, I shall not describe it. They have here a company, established by charter, for spinning American cotton to supply the manufactures which used to take annually from Malta spun cotton to the amount of two hundred thousand dollars,

or

or about thirty thousand pounds sterling. This company enjoys many and valuable privileges. They have fourteen of the Manchester machines at work. As the cotton comes over foul, and full of sand, they are obliged to prepare it before they can begin to work. This they do in a simple machine constructed for the purpose. They have a large lanthorn cylinder made with pantile laths, leaving half an inch between lath and lath. This cylinder is inclined to the plain of the horizon, and is immoveable. Within this they leave a portion of a cone, approaching in its form to the containing cylinder, turning on their common axis, and furnished with iron spikes of about five inches in length, placed in a spiral line, to correspond with similar spikes fixed within the cylinder, in order to tease and to cleanse the cotton. The person who turns this machine with one hand, feeds it with the other. Government, which is disposed to give every possible encouragement to this branch of manufacture, has granted to the Marquis de Gobert exclusive privileges for his blanket manufacture at Vicq, as a reward for his having planted cotton in the island

island of Ivica, and has offered premiums to those who spin the greatest length of thread from one ounce of cotton. For printing cottons they have the same slow process, which was practised in England, with stamps, previous to the use of cylinders.

The manufacture which gave me the greatest pleasure was one of woollen, carried on by Don Vincente Vernis. He employs three hundred and fifty persons in making cloth for Spanish America, which indeed takes most of the Barcelona goods, except some silk smuggled with their brandy through Guernsey into England. He has a very compact and elegant machine for winding and twisting worsted, in which fourscore reels are managed by one little girl, whilst another gives motion to the whole, and at the same time employs herself at knitting. This child, sitting on a bench, treads a vertical wheel, which, by means of a wheel with cogs, fixed on the other end of the same axis, moves the horizontal wheel, and thereby turns the spindles. When one of the girls is weary the other takes her place.

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The manufactures have increased with such

such rapidity, that the wages of labour for all kinds of artists in the city and the environs have advanced to two pistreens, or one shilling and eight-pence a day, for which they work only seven hours. The common labourer will earn fourteen pence in winter, but in harvest twenty. These gains, however, are not out of proportion to the value of provisions, as regulated by the magistrate. Mutton is sold for ten pence the pound of thirty-six ounces, beef for seven-pence, and bread at present for seven farthings the pound of twelve ounces; lodging for a small family costs about two guineas a year.

The mechanics here allow, that to maintain a family with tolerable comfort, their gains must be one hundred livres Catalan for each, which is nearly eleven pounds sterling.

As fuel is not easily procured, they use the utmost frugality in dressing their little dinners, seldom indulging themselves with either roast or boiled meat, but mostly stewing it in pitchers over their fagon or little furnace.

Nothing can more distinctly mark the
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character

character of this people and the rigid parsimony which accompanies the industry of Catalans, than a trade by which many contrive to obtain a maintenance for themselves and for their families. This occupation is to make fogons, which they do for less than a penny sterling each. Their manner of constructing them is somewhat singular. They take any bottomless pot, without enquiring for what use or purpose this pot has been before employed. They line it within, and cover the outside with well-tempered clay, then putting three iron bars in the bottom, and three knobs by way of feet, with three more to support an olla or puchero, the whole is finished; and in this behold the poor man's kitchen. The puchero is simply an earthen pitcher, in which the meat is stewed, and hence the common invitation to dinner, even in the houses of wealthy citizens, is to partake of their puchero, or, as we say, to take pot luck.

The foundery for brass cannon is magnificent, and worthy of inspection. It is impossible any where to see either finer metal, or work executed in a neater and

more perfect manner. Their method of boring was invented by Maritz, a Swiss. Near two hundred, twenty-four pounders, are finished every year, besides mortars and field-pieces.

The stationers in Barcelona have a method of ruling books for merchants, than which nothing can be either more simple, expeditious, or exact. For this purpose they have a frame with bars, moveable in grooves, which are readily fixed at the distances required.

In every country a traveller can pass through, he will find some mechanical contrivances, some modes of expediting work, which are of late invention, or at least new to him; and I am inclined to think, that no country, if thoroughly examined, would furnish more than Spain. This, however, I conclude, not only from those transient observations which I have had opportunities of making, but from those of a most excellent mechanic, M. Betancourt, a Spaniard, who has sought out ingenious artists in their garrets all over Europe, and who, I am persuaded, not from national prejudice, but from intimate knowledge and

and conviction, places his own countrymen among the foremost in fertility of imagination and mechanical invention.

The inspection of their gun-locks gave me peculiar satisfaction. In those which are made in England, the tumbler, unless case-hardened, is apt to wear, and to go off upon the half cock; and even when executed in the most perfect manner, how many accidents have happened in going through a hedge; but in the Spanish gun-lock, the tumbler, if I may be allowed to call it such, being of a different construction, is free from these imperfections. I shall not here attempt any verbal description of this excellent piece of mechanism, but hereafter I may, perhaps, engrave my drawings, and give them to the public.

The commerce of Barcelona is considerable, notwithstanding the many impediments, natural and political, which have checked, and still continue to restrain its progress. This city has no navigable river, and seems to have been built in its present situation only for the sake of deriving protection from the high mountain which commands it. The basin is formed by a

mole, and is sufficiently capacious, but there is only twelve feet water on the bar. The quay is well constructed, but merchants are not permitted to land their goods immediately on it, lest the boatmen should want employment. All ships which are admitted to prattique, even though they should be forced in by storms, pay a duty, which is called *Lluda*; and, should they be obliged to land the cargo, on reshipping, they have oppressive duties to discharge.

The province is indebted to Count Campomanes for the removal of the worst impediment to manufacturers that ever was invented by the blind avarice of sovereigns, at once to seize a revenue and to cut off the source from which it should arise. Although abolished, the *Bolla* deserves to be recorded for the honour of the king, who, from principles worthy to be adopted by all the governments in Europe, had the wisdom to revoke it. Previous to the abolition of this vexatious tax, the weaver could not begin a piece of cloth without sending for the administrator of the *bolla* to affix his leaden mark, and when he had finished it, he was to do the same. When
disposed

disposed of, it was necessary to have another leaden seal, attended with a certificate; after which, when sold by retail, the portion cut off was to be sealed with wax, and the end of the piece, from whence this small quantity had been taken, was to be sealed again with lead. The tax was fifteen per cent.

We wonder at the strange absurdity of this imposition; but, let our own government reflect, that the sovereigns of Catalonia had not the monopoly of folly. Spain may with good reason say to England,

*Cum tua pervideas oculis mala lippus inunctis;
Cur in amicorum vitiis tam cernis acutum.*

HOR. SAT. lib. i. sat. 3.

Brandy, wine, nuts, almonds, raisins, and cork, are shipped at different places on the coast for the merchants who reside in Barcelona. The wines are Mataro, Villanova, Sitges, Valls, and Granatché. The price varies according to the season, but when it is highest, we may reckon Mataro at sixteen dollars, or forty-eight shillings, the hogshead, including the Spanish duties; Villanova, fifteen dollars; Granatche, forty.

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All these are red. The following white wines are, Sitges, fifty-four; Valls, twenty dollars; but the common price is twelve dollars and an half per hoghead for both the Mataro and Villanova.

When brandy is dearest, it is sold, duty free, on board, at 57 dollars, or £.8. 11s. the four cargas or pipe of 124 gallons English, Hollands proof, or 1s. 4½*d.* per gallon; but it is sometimes sold at 10*d.* Of late considerable quantities of brandy have been embarked at Barcelona, where they may be deposited from the neighbouring country, without being liable to the heavy municipal duties levied at the gates of the city on provisions of every kind, and from the imposition of which, brandy is much dearer in Barcelona than in Guernsey.

Besides the articles above enumerated, the merchants export wrought silks, printed cottons, woollen goods, small arms, and specie; this last is contraband. Catalonia furnishes thirty-five thousand pipes of brandy, and two thousand of wine, besides thirty thousand bags of nuts, containing three bushels each, at twenty shillings the bag. Of the above, about four thousand
 11A pipes

pipes of brandy, and some silk, go to Guernsey and Alderney, and the rest to France, all to be smuggled into England.

The cork bark, which makes a principal export of this province, was for a time prohibited, under the idle notion that the inhabitants might manufacture it at home; not reflecting that the English cutters could get a supply of cork in Portugal and France.

The imports are corn, fish, woollen goods, hardware, and oil of vitriol. The articles prohibited are beer, cyder, lead, hose, haberdashery, muslins, and cottons; but of the two last, immense quantities are smuggled in.

Wine, entering the city, pays a town duty of fifty reals per carga of twenty-eight gallons. Wheat and barley, entering by sea, pay, if for the public bake-house, one and an half per cent; if on a Spanish merchant's account, three per cent; and if on account of alien merchants, four and an half per cent. This duty was recovered formerly for the bishop; but at present the

king takes a part of it on his own account.

Cloth pays from one hundred twenty-seven to three hundred fifty-seven maravedis the vara.

Leather pays eighteen maravedis per pound. Hardware from thirty to fifty per cent.; and fish, from thirty to seventy per cent. on the prime cost. Wine exported pays five per cent. if on foreign bottoms, but if on Spanish, it is free. Nuts pay three sols eight deniers per sack; of these, twenty thousand are for the English market.

About one thousand vessels enter the port of Barcelona yearly, and of these one half are Spanish, one hundred English, one hundred and twenty French, and sixty are Danes.

The confidence of Catalans on the intercession of the saints has at all periods been a source of consolation to them, but upon some occasions, has betrayed them into mischief. Every company of artisans, and every ship which sails, is under the immediate protection of some patron. Besides

folio

folio volumes, which testify the numberless miracles performed by our lady of Montferrat, every subordinate shrine is loaded with votive tablets. Were this persuasion of the kindness and power of departed saints productive only of gratitude and hope, it were cruelty to rob them of their treasure; but, unhappily, it has been the parent of presumption; and among the merchants has brought many wealthy families to want. The companies of insurance in the last war, having each of them its favourite saint, such as San Ramon de Penaforte, la Virgen de la Merced, and others, associated in form by the articles of partnership, and named in every policy of insurance, and having with the most scrupulous exactness allotted to them their correspondent dividend, the same as to any other partner, they concluded, that with such powerful associates it was not possible for them to suffer loss. Under this persuasion they ventured, about the year 1779, to insure the French West Indiamen at fifty per cent, when the English and the Dutch had refused to do it at any premium, and indeed when most of the ships

were

were already in the English ports. By this fatal stroke all the insuring companies except two were ruined; yet, notwithstanding this misfortune, this superstition remains in force.

In Catalonia as in France, with which this province was formerly connected, accounts are kept in livres, sols, and deniers; twelve deniers make a sol, and twenty sols a livre. Thus far all is plain and easy, but when we are to reckon by the money of this province, nominal and real, nothing can be more perplexing. If we reckon the peso or current dollar at three shillings sterling, the hard dollar will be four, the current pistole, twelve; and the pistole of gold, fifteen shillings.

But for greater perspicuity, I shall reduce them to a table, reminding the reader that in proportion as the exchange varies, additions or subtractions must be made.

CURRENT

CURRENT COINS OF BARCELONA.

Maravedi, of which 4 make a Quarto, 18 a fol.

Half Quarto of 2 Maravedis.

Quarto of 4 Maravedis, worth $\frac{2}{3}$ of a penny sterling.

Double Quarto, worth $\frac{4}{3}$ of a penny.

The above are of copper. Those which follow are of silver.

Denomination.	Value in Quartos.	Value in Sols. Deniers.	Value sterling.
Quarter Pistreen	8 $\frac{1}{2}$	1 10 $\frac{1}{2}$	£. 0 0 2 $\frac{23}{32}$
Half Pistreen	17	3 9	0 0 4 $\frac{23}{16}$
Pistreen	34	7 6	0 0 9 $\frac{9}{14}$
$\frac{1}{4}$ Pillar ditto	10 $\frac{1}{2}$	2 4 8	0 0 3 6
$\frac{1}{2}$ Pillar ditto	21	4 4	0 0 1 0
Pillar Pistreen	42	9 4	0 0 1 7 $\frac{2}{7}$
Double Pistreen	68	15 0	0 0 4 0 $\frac{3}{4}$
Peso Duro, Hard	170	37 6	0 0 0 0
Dollar			

THE IMAGINARY MONEY OF CATALONIA.

Denier		Deniers.		£.	s.	d.
Sol	-	12	-	0	0	1 $\frac{2}{7}$
		Sols.				
Livre	-	20	-	0	2	1 $\frac{3}{7}$
Real ardite	-	2	-	0	0	2 $\frac{4}{7}$
Pefo, cur ^t . Dollar		28	-	0	3	0
Ducat	-	38	7 $\frac{4}{7}$	0	4	1 $\frac{301}{478}$
		Dollars.				
Current Pistole	-	4, or 112	0	0	12	0
Pistole of gold	-	5, or 140	-	0	15	0

Eight Deniers are equal to 3 Quartz, Spanish Money.

To reduce Pesos into Livres, multiply by seven, and divide by five; or add $\frac{2}{5}$ of the Pesos.

To reduce Livres into Pesos, multiply by five, and divide by seven.

MEASURES IN CATALONIA.

Twelve Cortans make one Quartera, which is two Bushels, English measure.

Sixteen Cortans make a Carga of wine or brandy, which is about thirty Gallons English.

WEIGHTS.

Twelve Ounces make a Pound.

Twenty-six Pounds one Arroba.

Four Arrobas one Quintal, which is ninety-three Pounds English.

One hundred and twenty-five Pounds make one hundred and twelve Pounds English.

The building of Barcelona, according to historians, was about two hundred and thirty years prior to the christian era, and three hundred subsequent to the first establishment of the Carthaginians in Spain. It is said to have been called Barkino by its founder, in honour of his family, and to have derived from the Jews the commercial spirit which it has constantly retained.

It has seen many revolutions, and suffered much by every change. It was early delivered from the dominion
 A. D. 805. of the Moors, and raised into a county, paying homage to the kings of France, till they, unable to protect it, resigned their claims, leaving
 A. D. 874. the citizens to their own exertions for the vindication of their freedom. From this time their struggles, for more than a century, were incessant with the Moors; but, in the end, the
 A. D. 994. crescent yielded to the cross, and for many generations Barcelona was independent on its neighbours. Towards the close of the twelfth century it was annexed, by the marriage of its count, to the crown of Arragon; and, at a subsequent
 period,

period, by the union of Ferdinand and Isabella, it became part of the Spanish monarchy.

Whilst the succession was disputed between the two houses of Austria and Bourbon, on the death of Charles

II. of Spain, this city was A. D. 1700.

of too much importance to the contending powers to remain long in the quiet possession of either. The French were masters of the city when the earl of Peterborough arrived upon the coast with his little army, a force too inconsiderable to attempt a siege with any prospect of success. But as this gallant officer had that which supplies the want of more numerous armies, an imagination fertile in resources, his friends never gave up their hopes of success, till they saw him re-embark his troops, and prepare for sailing. The moment of despair to them was to the besieged the reviving of their confidence, and his departure the signal of festivity to those who had never been free from apprehensions whilst he remained before the city. He sailed; but in the night he disembarked his troops, and before the morning he got possession of Mon-

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jouch; after a few days more he was master of the city. In this arduous undertaking he was well supported by brigadier Stanhope and Mr. Methuen, whose prudence, fidelity, and valour procured for them those honours which they have transmitted to their families.

Gerona, Tarragona, Tortosa, and Llerida, followed the example of the capital, and declared for Charles. Wherever the earl of Peterborough turned his arms, victory declared for him; it was sufficient for him to shew himself, and every city offered him its keys. Whilst he was in Valencia, the enemy laid siege to Barcelona; but he hastened to its relief, and compelled them to retire, not only from before the city, but

May 1. 1706. out of the province, although he had only a few troops, and they had thirty thousand men. When he was superseded, a series of misfortunes too well known hastened the fall of the arch-duke's dominions; and the citizens of Barcelona, after an obstinate resistance, opening their gates to Philip, submitted, though reluctantly, to bear the yoke.

A spa-

A spacious and airy walk round the walls, with the inclosed gardens, contributes towards making Barcelona one of the most delightful cities in the world. No one, who has been there in the spring, will be ever weary of expatiating on the pleasures he enjoyed.

It is situated in a plain, open to the south east, but protected from the west by Monjuich, and from the north by a chain of mountains which are terminated to the west by Mont S. Pedro Martyr. The soil, from six to ten feet deep, is clay.

In this plain, near to the city, is a little stream, which, in summer, serves for watering the country; but to the westward, beyond Monjuich, is the Lobregat, the largest river between the Ter, which runs by Gerona, and the Segre, which, rising in the Pyrenees, empties itself into the Ebro.

One of the mountains opposite to the city, called S. Jeronimo, is famous for its convent and for its gardens, which are spacious, shady, and well-watered. At the bottom of the hill is a quarry, in which the stone evidently contains much calcareous

matter. Higher up is granite of a loose texture, crumbling and decomposing, whilst the middle and the top to the south, and hanging to the sea, is altogether schist; but beyond the summit, descending to the north, there is only granite. We must always remember, that in the natural situation the granite is covered by schist, and the schist by calcareous rock. From this elevated spot Montserrat appears magnificent, and seems to be within two hours walk. The prospect every way is pleasing and extensive.

On the sides of this mountain they have quarries of limestone and marble.

My distant excursions were reserved for holidays, when the consul was at leisure to go with me. In one of these we visited Mont S. Pedro Martyr, from which you command a more extensive prospect than from S. Jeronimo. To the north of this stands Montserrat, and beyond it the Pyrenees appear sinking in the horizon, and looking only like a wall of snow. Turning to the south and to the east, we see the whole extent of the rich vale which supplies the city, and the numerous adjacent villages; and beyond this, the Mediterranean, bounding

ing the distant view. To the westward flows the Lobregat, descending through the gorges of the mountains, from which it receives innumerable torrents, and having spent its fury, moves on slowly to the sea, winding its meandering course through the extended plain which itself has formed.

The base and body of this mountain is granite; but as you rise towards the summit, you find the proper covering of schist breaking into thin white flakes, and, with the vitriolic acid, forming alum. It is evidently from the dissolution of the schist, which every where abounds on the tops of these high mountains, that the subjacent plain is covered to so great a depth with clay, not merely with such as the brick-makers prefer, obstinate and sterile, but such as, by the mixture of calcareous matter and of sand, approaching to a marle, is easily broken by the plough, and bears the most luxuriant crops.

These mountains are cultivated, and where the plough cannot go, even to their summits, they are covered with vines.

Here, for the first time in Spain, I found

the *quercus coccifera*, which bears the kermes; but on these no traces of that little animal appear.

We dined at a country house belonging to the Dominicans, to which those fathers go when they wish to breathe a purer air, or to retire for a season from the restraints of the monastic order. Here they have a hall of near sixty feet, many good bedrooms, and a gallery of ninety feet in length by eighteen wide, open to the east and to the south, commanding at once the plain, the mountains, and the sea, with the city, some villages, a few convents, and numberless farm-houses scattered in the valley. Above and below them, on the declivities, are stretched their vineyards, furnishing them with raisins and excellent wine. They received us with hospitality, and had we been inclined to stay, they would have given us beds. Here we remained until the setting sun reminded us that we must mount our horses and return.

I have seldom quitted any spot with more regret; and had I not soon after left Barcelona, I should have chosen this
for

for my retreat, in which, with the assistance of a father, I might have learned the Spanish language.

Having surveyed these elevated regions, which bound the prospect to the north, I was desirous of investigating with more minute attention the nature of Monjuich, which, hanging over the sea, commands the city to the west. For this purpose I walked upon the beach, clambered on the cliffs among the rocks, and either on horseback or on foot I crossed its summit in all directions, that I might examine it in every part. The base and body of this mountain is sand, stone, or silicious grit, of a fine grain, and either white, red, or gray, with some little sprinkling of mica. The summit, in some places, does not differ from the base, but in others it is covered with pudding stone, with schist, with clay, or with fuller's earth; and, which is most worthy of attention, both the schist and the clay carry fossil shells.

If I might venture to hazard a conjecture, supported by these facts, and by others similar to these, I should be much inclined to think that this whole mountain

is a deposit, and that the grit is only the decomposed granite, either of those mountains, of which I have given the description, and which is of three species, white, red, and gray, or else of some other mountains, which exist no more.

This subject will be resumed when I come to treat of the environs of Salamanca; and I hope that the theory here delivered will then not only be confirmed, but help to throw a light upon some parts of natural history, which are now obscure.

If my conjecture be well founded, Monjuich must not merely have been covered with the sea, and this fact is beyond a doubt, but it must have been relatively lower, and much lower than the granite mountains by whose spoils it was composed, being accumulated at the conflux of two or more currents, as we see in miniature in torrents, or at the junction of two streams. Whoever is well acquainted with the external appearance, and with the internal structure of the country near Southampton, will see a striking example of this accumulation, not from matter brought by either of its rivers, for their beds are
too

too low for such an operation, but by the action of currents, when the surrounding hills of Suffex, Wiltshire, Dorsetshire, and the isle of Wight, were under the surface of the sea, as we must conclude from the fossil shells found in the chalk on every one of these hills.

From Monjuich we look down on the extensive plain formed by the Lobregat, which appears fertile, but by no means inviting, because every thing in it has a gloomy aspect, and the inhabitants have all the tokens either of agues, of dropfy, or of jaundice.

The fortifications on this mountain are reckoned perfect in their kind; they are highly finished, and for beauty do credit to the nation. These, in addition to the strong works round the city, and the citadel, must render Barcelona untenable by an enemy.

The appellation of Monjuich has never been properly explained. They anciently wrote Monjouy, but the pronounciation is Monjuiqu, which may possibly mean mountain of the Jews. Certain it is, that the Jews were numerous in this part of

Spain, and that on the hill looking towards the city there are monumental inscriptions on large hewn rocks in Hebrew characters; many of the words are scarcely legible, but by those which can be read, that spot appears to have been the burying place of the Jews.

The country around Barcelona is well cultivated, and abounds with vines, figs, olives, oranges, silk, flax, hemp, algaroba fruit, wheat, barley, oats, rye, beans, peas, vetches, Indian corn, millet, with all kinds of lettuce, cabbages, colliflowers, and other vegetables for the service of the kitchen.

To plough their land they use only two oxen, or one strong mule, and no boy to drive. Their plough is light, and well contrived: the beam is long, and fixed to the yoke, if they have two oxen; or if they use one mule, they fix it to the collar by shafts; for stirring they use no coulter, fin, nor mould-board, but in its stead two ears for breaking up their land; and when the soil is stiff, they drop the ears, and take coulter, fin, and mould-board, which they put on or off in three minutes time. They have

have two methods of setting the plough up or down, so as to go deeper or shallower at pleasure, notwithstanding the greatest variety in the tenacity of the soil. At the extremity of the beam there are three holes, about four inches apart, and by one or other of these they fix it to the yoke. If they want to set the plough deeper into the ground, they put the pin through the furthest hole, nearest to the extremity or point of the beam; but when they want the plough to go more shallow, they put the pin through the hole which is furthest from the point. When the land is so stiff that they cannot by these means keep the plough shallow enough, they have an easy method to sink the beam, or in other words, to raise the point of the share, which a sight of my drawings will explain.

It is impossible to pay more attention to the construction and use of ploughs, for all the different purposes of husbandry, than they pay to this important subject in the country about Barcelona. The harrows have iron furniture. As for rollers, they are not to be expected where wood is so very scarce.

scarce. To break the clòds they use a board, on which a boy standing drives the mule. Their hoe is almost as wide and as heavy as our spades, but set in such a manner as to form an angle of about thirty degrees with the handle, so that a man must stoop very low to use it. For my part I should prefer a spade; but this, perhaps, may be the prejudice of education. The noria must be considered as one of their implements in husbandry. It is here constructed somewhat differently from that which I have before described. The noria of Barcelona is the original chain pump, or at least its parent, as having suggested the idea on which the chain pump is formed, and from its simplicity appears to have derived its origin from the most remote antiquity; it consists of a band or girdle passing over a sprocket wheel long enough to reach eighteen inches, or two feet below the surface of water in a well. All round this band, at the distance of about fifteen inches, are fixed jars of earthen ware, which, as it turns, take up water from the well, and pour it into a cistern fitted to receive it. A little ass
going

going round his walk, with ease turns a trundle, which gives motion to a cog-wheel fixed on the same axis with the wheel on which the band is hung, and with which it turns, thus producing a constant and considerable supply of water at a small expence, and with very little friction. As the air would obstruct the entrance of water into these jars or bottles, each jar has a little orifice in its bottom, through which the air escapes, but then water follows it, and a certain quantity falls back into the well. It is true, as the jars rise in one strait line, the water which runs out of the superior jar is caught by that which is immediately below it; yet still there is a loss; and besides this inconvenience, the whole quantity is raised higher than the reservoir, at least by the diameter of the sprocket wheel, because it is only in their descent that the jars are emptied. The chain pump boasts undoubtedly many and great advantages over this machine; yet the chain pump itself is not free from imperfections. If the valves are not well fitted to the cylinder through which they move, much water will fall back; if they

are well fitted, the friction of many valves must be considerable, besides the friction of the chain round the sprocket wheels, and of the wheels themselves. Chain pumps require a great number of men to work them, not in the open air, but under deck, where the heat is great, and the fatigue insufferable. The preference, therefore, which has been given to chain pumps over those which work by the pressure of the atmosphere, must have arisen from this one circumstance, that they have been found less liable to choke.

In point of friction, of coolness, and of cheapness, the sucking pump has so evidently the advantage over the chain pump, that it will not fail to gain the preference, whenever it shall be no longer liable to be choked with gravel and with chips. Many and various have been the expedients thought of by mechanics to improve this pump; the one which caught attention and was adopted in our navy has, upon trial, been found defective. This was, instead of common valves with joints, to have cylinders with holes in the sides, but closed at top, moving in brass boxes, and known
by

by the name of canister valves. These have been found of all others the most liable to jam, and to become immovable by the introduction of sand between the canister and box. For this the public is indebted to Mr. Cole, who having acquired fame by executing the improvements of the chain pump invented by Captain Bentinck, readily obtained the credit, which was by no means due to him, for more than common ingenuity in this invention of his own. In the model, and with clean water, his experiments succeeded, and gained the approbation of the admiralty board, who immediately gave orders for their introduction in our ships of war. To this hasty approbation has been attributed the loss of the Centaur, and of some other ships returning with her from the West Indies. It is, indeed, impossible to say how many ships have perished in consequence of this change in the construction of our pumps, as the most fatal accident which can happen to a vessel under the pressure of a storm is the choking of her pumps. The admiralty board can never be too cautious in the examination of improvements,

provements, nor too much upon their guard how they give credit to certificates in favour of any which they have ordered to be tried. In the new edition of Chambers's Dictionary, lately given to the public by Doctor Rees, we have a description of Captain Bentinck's chain pump, the excellence of which will never be called in question; whilst credulity itself can by no means find it easy to believe the report of experiments tried on board the Seaford frigate, and signed by Rear Admiral Sir John Moore, twelve captains, and eleven lieutenants of his Majesty's navy. It is stated, that with the old chain pump seven men were seventy-six seconds raising one tun of water, whereas with the new pump two men raised the same quantity in fifty-five. Had Sir Thomas Slade, who was then surveyor of the navy, and Captain Bentinck, been upon better terms, this report had certainly been drawn up in a manner more agreeable to truth, or at least the experiments would have been conducted with that degree of caution which would have done more credit to the integrity of those who were to sign, and to the understanding

standing of those who were to receive the report. Notwithstanding the acknowledged and most undoubted superiority of the new pump over that which had been previously used, it must have been evident to every one competent to judge between them, that this trial was not conducted fairly.

The imperfection of sucking pumps is prevented by a late improvement, which bids fair for universal approbation. Mr. Taylor, of Southampton, the same gentleman to whom not only England but all Europe is indebted for blocks, which, by long experience, have been found perfect both in point of strength and of prompt obedience; at the request of some naval gentlemen, applied himself to the consideration of this matter, and soon found a remedy, which, in all probability, will bring this pump nearer to perfection than any which has been hitherto employed. He began with taking away the lower valve, together with its box, and in its place he substituted a ball, falling down into a part of the same chamber in which the upper piston works, contracted for that purpose; but as it was not easily extracted,
instead

instead of this, he took the segment of a sphere, and in its centre he riveted a pendulum. By this simple contrivance, the chips and gravel pass without inconvenience, and the pendulum valve falls back into its place. Nothing can be more promising in its appearance; it remains for time and for experience to confirm the judgment which has been formed of this improvement.

At Barcelona, some gentlemen who excel in mechanical invention, sensible of the peculiar imperfections of the noria, have studied how to avoid these in a machine which they have constructed, and which is not altogether void of merit. The beam, to which the traces of the horse are fixed, is near eight feet long, of consequence the diameter of the horse-walk is sixteen feet, and that of the horizontal lantern or trundle is near four feet. A vertical wheel moved by this is of the same diameter, and gives motion to a vertical lantern or trundle of two feet seven inches, and thereby to a water wheel of ten feet and an half diameter. The movements in this machine are too complicated, and thereby
both

both the expence and the friction are increased. Besides this, the horse walk is too small, and the beam being behind the horse, instead of being placed over his shoulders, the line of draught makes with it an angle of forty-five degrees, and thereby one half of his force is lost. These mistakes are not uncommon, and for that reason only they are mentioned in this place. That which fixed my attention, was the construction of the water-wheel. It is a cylinder divided into two portions by a septum parallel to its sides. In each portion there are chambers formed by four partitions, which make a square whose angles touch the circumference of the wheel, so that each chamber is the segment of a cylinder. The partitions on one side of the septum are not parallel to those on the other side, but are placed in a different direction, so that when of those which are on one side two are perpendicular, those on the other side make an angle of forty-five degrees with the horizon. In each of these chambers there is an opening to receive the water of one quarter of the arch. A leather collar embraces the wheel, where

it discharges the water, to prevent waste. The peculiar excellence of this wheel is, that no water is lost after it has been received into the chambers; but then with all this machinery the water is raised less than eight feet high. Round all the reservoirs they construct a parapet wall for washing linen, as I have described already.

For hemp they have a machine similar in its form to that which is used in all our sugar islands for bruising canes, but differing in its materials, and in the position of the whole. Here they place the three fluted rollers, made of oak, one above the other, causing them to act upon the hemp as it passes between them, not only by their weight, but by the pressure of two strong springs. A mule turns a wheel, which giving motion to the lowest cylinder, makes the uppermost revolve in a direction opposite to its own; and as behind them there is the section of a drum, or hollow cylinder, to stop the hemp, and direct it in its return, that which has passed between the uppermost and the middle roller comes back bruised between the middle and under rollers.

The

The common course of husbandry about Barcelona is wheat, which being ripe in June, is immediately succeeded by Indian corn, hemp, millet, cabbage, kidney beans, or lettuce. The second year these same crops succeed each other as before; the next year they take barley, beans, or vetches, which coming off the ground before midsummer, are followed, as in the former years, by other crops; only changing them according to the season, so as to have on the same spot the greatest possible variety.

The common produce of wheat is ten for one, but in the rainy seasons they get fifteen; all these crops are watered, when water is to be had, either by some spring or by the noria.

April 24, they were ploughing for hemp, which they expected to cut the middle of July; after which, they proposed to put in turneps, parsnips, and lettuce, for the autumnal market. The land will bear flax, but they find hemp more profitable.

I was much struck with their mode of filling the dung cart. For this purpose, they have three men, one in the cart, one

on the heap, and one between them to carry the little basket, after the latter with his three pronged fork has filled it. They smiled at my simplicity in thinking, that if all had prongs the cart would be filled much quicker; and it is only for expedition that they have hit upon this method.

In the country, at some distance from the city, they pay for wages in husbandry, from ten pence to one shilling sterling a day for men, and half as much for women; but carpenters will get sixteen pence, and masons two shillings.

✓ The rigid parsimony of Catalans appears in their scanty provision for the day. When they carry their little basket to the market, together with their beef and garden stuff, they bring home two deniers worth of charcoal. This circumstance is so characteristic, that when they would reproach the rich miser for his penury, they say that notwithstanding his opulence he still continues to send to market for *dos dineros de Carbon*. Twelve deniers make a penny.

Their dress is singular. They have red
night-

night-caps over a black net which receives the hair, and hangs low down upon their backs. Their waistcoat or short jacket, with silver buttons, is close, and bound with a long silk sash, passing many times round their loins, and then tucked in.

In Spain, Italy, and Africa, all the inhabitants bind themselves up with sashes, as a preventative of ruptures. Certain it is, that these are very common; but when we consider that the nations which use no sashes are not much subject to ruptures, we may perhaps be led to attribute this accident to relaxation, which must be promoted by the very precaution which they have adopted to prevent it.

Their breeches are commonly black velvet; they have seldom any stockings, and sandals supply the place of shoes.

No people upon earth are more patient of fatigue, or, travelling on foot, can outstrip them. Their common journey is forty miles, but upon occasion they will run threescore. For this reason they make good guides and muleteers; being employed as such all over Spain, and trusted

without reserve, on account of their integrity.

The environs of Barcelona are friendly to botanical pursuits, and the city is not destitute of some who cultivate this science. I received much assistance from Don Ignatio Ameller, an apothecary, whose library would do honour to the first botanist in Europe. To him I frequently resorted, and found him conversant with the best authors who had written on this subject. There is also a young man, whose employment is to collect medical plants for the apothecaries; in him I found an excellent disciple of Linneus, and collected from his hortus siccus such plants as I had not met with in my walks, all arranged according to their classes. Among these I found the following: Canna; Salicornia; Blitum; Valeriana; Veronica, both the vulgaris and the becabunga; Syringa; Ligustrum; Olea; Phillyrea fl. lüt; Rosmarinus; Salvia of several species; Jasminum; Gratiola; Pinguicula; Verbena; Lycopus; Justicia; Crocus sativus; Nardus montana; Ixia; Gladiolus communis; Iris vulg. flor. Ceruleo,

Ceruleo, & palustris fl. luteo & fætiffima, with the Iris bulbosa flore variegante; Cyperus rotundus; Plalaris; Arundo; Gramen officin. dactylis; Holosteum; Scabiosa vulg.; Scabiosa specias; Globularia Dipfacus filv. Galium; Gallium luteum & album; Rubia tinctorum; Crucianella; Plantago major vulg.; Coronopus vulg.; Pſyllium; Pimpinella; Cornus; Alchemilla; Cuscuta; Potamogeton; Ilex; Heliotropon; Myofotis; Lithospermum; Anchusa; Buglossa vulg.; Cynoglossum vulgare; Onosma; Echium; Asperugo; Consolida major; Pulmonaria maculata; Borago hortensis; Cortufa; Primula veris & Auricula; Verbascum; Campanula; Convolvulus marinus; Scammonea; Polemonium; Cyclaminus; Anagallis fl. rub.; Lyfimachia fl. lut.; Lonicera; Ribes; Coris; Physallis; Atropa Hyoscyamus; Capsacum; Mirabilis; Datura; Solanum; Glycypitros; Lycoperficon; Melongena; Rhamnus; Frangula; Euonimus; Nerium; Vinca; Asclepias; Salsola; Ulmus; Herniaria; Gentiana major; Centaurum minus; Echinophora; Eryngium; Sanicula; Bupleurum; Daucus; Caucalis; Ammi;

mi; Bunium; Conium; Apium; Athamanta; Crithmum; Lacerpitum; Sphondylium; Ligusticum; Imperatorium; Angelica; Cuminum; Smyrnum; Thapsia; Anethum; Ferula; Sium; Oenanthe; Coriandrum; Chærophylum; Carum Scandiac; Rhus; Tinus; Sambucus; Parnassia; Linum; Drosera; Statice; Lilium cand.; Lilium fl. nutante hemerocallis; Lilium fl. nut. martagons fl. purp. Lilium radice asphodeli; Pancratium; Amaryllis; Allium sylvestre; Porrum; Cepa alba; Leucojum bulbosum; Ornithogalum fl. lutea; Narcissus; Scilla; Tulipa; Asphodelus; Lilium Conval; Hyacinthus fl. cerul; Corona imperialis; Fritillaria; Erythronium; Asparagus; Juncus; Tradescantia; Aloe; Berberis; Lapathum acutum; Rumex; Colchicum; Alisma; Æsculus; Tropæolum; Epilobium; Ænothera Daphne; Polygonum; Fagopyrum; Bistorta; Persicaria; Herba Paris; Laurus nobilis; Rheum; Butomus; Senna; Cassia; Dictamnus fraxinella; Ruta; Tribulus; Melia; Arbutus uva ursi; Rhododendrum; Pyrola; Saponaria; Saxifraga; Dianthus; Cucubalus; Arenaria; Stellaria; Sedum; Lychnis; Oxalis; Tridactylus;

dactylus; Phytolacea; Asarum; Peganum; Portulaca; Lythrum; Agrimonia; Reseda; Euphorbia; Tithymalus pinea; Sempervivum; Cactus opuntia; Cactus scandens; Philadelphus; Psidium; Myrtus; Punica granatorum; Cerasus; Amygdalus; Crataegus; Sorbus; Malus; Pyrus; Oxyacantha; Mespilus; Ulmaria; Filipendula; Rosa; Rubus; Fragaria; Tormentilla; Quinquifolium; Geum.

The *Algarrobo* (*Ceratonia edulis*) near the sea, and to the south, is one of their most profitable trees; tender, yet requiring no attention, beautiful in its foliage, luxuriant, and commonly loaded with fruit, which is given to their cattle; not only to those which work, but to their oxen, when they are to be fatted for the shambles. The pod is long, and contains many seeds, abounding with saccharine matter. It is exceedingly pleasant and nutritious. It is ever green.

Barcelona, as a residence, is not only delightful, but healthy. There are indeed some days when all the inhabitants, but more especially strangers, are inclined to think it both unhealthy and unpleasant; that

that is, when the east wind brings in the fog, which for many days before had been observed standing off at sea, as if watching and waiting for an opportunity to land. The pores are then locked up, and the temper becomes so irritable, that the best friends must be careful how they meet. But no sooner does the land breeze spring up, than the fog retires, the sun breaks out, and all nature wears a smile. In Barcelonetta, and the citadel, in which a garrison of five thousand five hundred men is quartered, intermittents never cease to rage, and to bring on in winter, dropfies and jaundice, and in summer malignant fevers. The same diseases reign beyond Monjuich, in the low country watered by the Lobregat; but although the prevailing wind in its passage becomes loaded with miasmata, yet, being diverted from its course by that high mountain, it has no baleful influence on Barcelona.

J O U R N E Y

F R O M

BARCELONA To MADRID.

WHEN I had nearly satisfied my curiosity, and had seen almost every thing worthy of attention, I began to think how I was to proceed in my tour through Spain. Not having as yet acquired the language, I was by no means qualified to travel alone; but as my intention was to go directly for Madrid, I was informed that in the course of a few days some opportunity would offer to join with three others in the hire of a coach. In the mean time I continued my excursions in the country, and visited again those places which had struck me most.

At length having made a party with three officers in the Spanish service, two of them

them natives, the third a Frenchman, who were all going to Madrid, we hired a good coach with seven mules, and left Barcelona on Saturday, *May 6*, in the afternoon. That evening we travelled five leagues on the banks of the Lobregat, and lay at Martorel. This place is famous for Hannibal's bridge, with its triumphal arch. I should have been happy, had the time permitted, to have made a drawing of these venerable remains, with the high mountain which rises near them, to the east, and Montserrat, which is seen at the distance of three leagues, hiding its lofty summit in the clouds.

Martorel is one long narrow street, in which poverty, industry, and filth, although seldom seen together, have agreed to take up their abode. The inhabitants make lace, and even the little children of three and four years old, are engaged in this employment.

The next morning we came to Piera, at the foot of Montserrat, no longer appearing like a sugar loaf, but rather like a saw, rising almost perpendicular, and lifting up its rugged rocks like pyramids to meet the clouds.

clouds. Of all the countries I have seen, few have ever struck me like this in the vicinity of Montserrat.

The mountain is calcareous; but that which is most remarkable is, that the whole is pudding stone, composed of limestone gravel, formed into one hard mass by a calcareous cement, and yet of such stupendous height, that from its craggy summit are seen the islands of Majorca and Minorca, at the distance of fifty leagues. On the same mountain are found rocks of grit, or sand stone; and, according to Bowles, the lapis lidius is no stranger there. All the country near this surprising mountain would, if it were more distant, appear mountainous; it is every where torn by deep ravins, laid open to the depth of one hundred and twenty feet, and appears to be composed of broken schist, with clay and sand. The rocks, which here and there peep through the soil, are evidently tumblers from Montserrat, and serve to shew the nature of that mountain.

This singular phenomenon is rendered more remarkable by a stupendous mountain in its vicinity, described by Bowles;
a moun-

a mountain of three miles in circumference, near the village of Cardona, which is one mass of salt; it is equal in height to those of the Pyrenees, on which it borders. In a climate like our own such a mass had long since been dissolved, but in Spain, they employ this rock salt as in Derbyshire they do the fluor spar, to make snuff-boxes and vases, with other ornaments and trinkets. I carried a little fragment with me all through Spain, without the least sign of deliquescence; but when I came to England, I soon found it surrounded with a pool of water.

I shall not at present make any observations on the formation of these mountains; yet one circumstance I would wish to be remembered in the rocks of Montserrat, which is, that in some of the strata the gravel is smooth and rounded, like that which is found upon the sea beach.

After having travelled many leagues, with Montserrat constantly on our right, and rising above us like a wave when it is prepared to burst, we began to increase our distance from its base, and winding to the left, descended among the mountains
which

which border on the Noya, and which are composed of white granite. The ravins here are wider and deeper than those which we had seen the day before, and leave no room to doubt in what manner mountains acquire their form. But whoever travels through this country, and sees how nature has been convulsed, must look for some more powerful agent to account for the phenomena than water and the most raging torrents.

Having crossed the Noya, and keeping along its banks for about half a mile, through a narrow pass, with the river on our right; we had on our left, cliffs rising perpendicular to the height of near two hundred feet, composed of calcareous incrustations, by the French called tuf, inclosing snails and leaves, like that which is between Montpellier and Montferrier. It had happened opportunely, that as we were descending to the river, the coach was overturned, which gave me time to walk forwards, and not only to examine, but to make a drawing of the cliff, with its pendent rocks and caverns. Happily we received

ceived no other injury than a few trifling bruises, and a delay of about half an hour. At the end of this short interval we were jogging on again towards Igualada, where, after having three times passed the Noya, we arrived about the setting of the sun.

The country which lies round this lovely village is rich, highly cultivated, and well watered, hilly, and broken by ravins. The rock is schist, and the strata are horizontal; as we advance the schist whitens, and becomes mixed with calcareous earth, till by degrees we lose the schist; and after observing for some considerable space limestone rock covered with white earth and clay, we meet only gypsum. In the same progress we lost at first the vine, then the olive and the ilex, till nothing remained but the *quercus coccifera*, and the oak.

The ploughs of this country are the degenerate offspring of those near Barcelona, not so well executed, but constructed upon the same general principles, with this difference, that they have no mould-board, no fin, and no coulter to be occasionally used.

The

The gypsum soon gave way to a vast expanse of chalk, before we reached *Cervera*.

This city is in a most delightful vale, which is extremely fertile, and surrounded by hills, on one side of chalk, on the other of limestone. This part of the country, between the Noya, which runs into the Lobregat, and the Segre, which joins the Ebro, is the highest land in this part of Catalonia. The university in this city was founded by Philip V. and A. D. 1717. has commonly about nine hundred under graduates, chiefly designed for employments in the church and at the bar, with some few for medicine.

Having ascended from Cervera, the limestone rock appears; and the hills are covered near the city with vines, but at a greater distance with olives in vast plantations. As we advance, the limestone gives way to chalk, and, in the same proportion, barrenness succeeds to plenty; but when the chalk is again replaced by limestone, the face of the country improves, and the hills are once more covered with vines and olives.

At *Tarraga* we fared sumptuously, and had a good hall to sup in, with single bedded rooms, and glafs in all the windows.

This village is situate in a valley of great extent, bounded by distant hills; the soil is clay, yet the crops look sickly. The fields are all in tillage. They plough with mules.

Approaching *Lerida*, the valley becomes less fertile in its nature, being chiefly a hungry sand covering a bed of gravel, chiefly silicious, with granite of every species. This, from the situation of the country, might be well expected, considering the multitude of rivers which here unite their streams, all rising in the Pyrenees, and flowing from mountains which extend, east and west, more than an hundred and twenty miles.

Lerida is a pretty little city, with a cathedral, four parish churches, and sixteen convents, thirteen for men, and three for women. It is situated on the *Segre*, under the protection of a hill, on which are seen the ruins of a castle, now going to decay, but formerly of considerable strength.

The

The rock on which it stands is filicious grit with a calcareous cement. This city, called *Ilerda* by the Romans, was rendered famous by the distress to which Julius Cæsar was reduced when encamped in its neighbourhood. He had taken possession of a plain shut in between the rivers *Cinga* and *Sicoris*, and defended by a deep intrenchment, whilst Petreius and Afranius, Pompey's generals, were encamped on a hill between him and *Ilerda*. In the intermediate space, between the hill and the city, is a plain of no great extent, with an eminence, which, if seized, might be quickly fortified, and being fortified, would cut off all communication with the city. For this, during five hours, they maintained a doubtful conflict; but in the end fortune declared in favour of Afranius, and Cæsar retreated to his camp. Whilst revolving in his mind how he should cover this disgrace, word was brought, that by the melting of the snow upon the mountains his two bridges were broken down, that the country was laid under water by the overflowing of the rivers, and that all communication

was cut off with the provinces by which his army had been fed.

The immediate consequence was famine. Whilst he remained in this situation, messengers were sent to Rome, and all gave him up for lost. It was upon the news of this distress that Cicero left the city, and joined Pompey at Dyrrhachium. Cæsar, without loss of time, set his men to work, and having made a sufficient number of little boats, light and portable like those which he had seen in Britain, after a few days sent a party up the river in the night, who, with these boats, made good their landing, and having fortified a camp, secured his retreat.

The situation of Lerida is delightful, and the country in which it stands is one continued garden, covered with corn, with olive trees, and vines. For beauty few places can exceed it, but from the abundance of water, it is far from being healthy; and, since the year 1764, this city, with the villages of Tarraga, Igualada, and Martorel, and all the surrounding country, has been ravaged by a malignant fever, which was spread

spread by the French troops in their return from Portugal.

Alarmed at the progress of this destructive fever, the king lately sent one of his physicians, Don Joseph Masdeval, to examine the symptoms, and to instruct the faculty in the best method of treating it. His practice is so remarkable, and the attestations in its favour are so respectable, that, in treating of Carthagena, I shall lay them before the public. Previous to his arrival, notwithstanding every symptom of debility, and prostration of strength, the physicians had continued to order bleeding as long as there was any blood to flow. Whilst, however, we smile at their simplicity, we may too well remember when the same was the pernicious practice in our island.

The antiquities of Lerida, with its castle, and all that relates to the cathedral, are well described in a work lately published by D. Joseph Fenestres.

Being now at the extremity of Catalonia, it became necessary to lay in a stock of provisions sufficient to serve us till we should reach Zaragoza, or at least in aid

of those which we might purchase by the way. Hitherto we had fared well ; but now a little forethought became absolutely needful. In Catalonia, the traveller is under the protection of the magistrate, who settles the price of every thing he may want, and annually publishes his *arancel*, that is, a table of affize, which must be hung up in some conspicuous place of every inn. According to this, every guest occupying a bed-room with one bed must pay for that and his light three sueldos and nine deniers, or something less than five pence ; but if there are several beds in one room, then each pays two pence halfpenny nearly, or two sueldos Catalan. If he does not occupy a bed, he must pay for shelter six deniers, or $\frac{2}{14}$ of a penny. Every carriage pays one sueldo per night for standing. The ordinary is regulated as to the number and nature of the dishes, both for dinner and for supper ; and for these the prices are, including bread and wine for dinner, fifteen sueldos, or one shilling and seven-pence farthing, and for supper, fifteen sueldos three deniers.

	R ^s .	d ^s .	Sterling.	
			s.	d.
For a moderate sized fowl - -	4	12	0	11½
Ditto small - - -	3	20	0	10
Capon, if great - - -	9	20	2	1
Ditto small - - -	8	0	1	8½
Turkey, great - - -	30	0	6	5
Woodcock - - -	10	0	2	1¼
A dozen of eggs - -	2	16	0	7
Mutton, per pound of 36 ounces	4	12	0	11½
White bread, ditto - -	1	12	0	4
Ditto second, ditto - -	1	0	0	2½
Flour, ditto - - -	1	0	0	2½
Rice, ditto - - -	1	6	0	3¼
Maize, or Indian corn, ditto	0	12	0	1¼

The above is reduced into sterling by approximation, to avoid fractions of a farthing. It must be observed, that the reals in Catalonia are *ardites*, containing two sueldos, or twenty-four deniers, which I here suppose equal to $2\frac{4}{7}$ of a penny sterling.

From Barcelona to Lerida is twenty-five leagues, or nearly one hundred miles. From Lerida we came to Alcaraz, two leagues.

Here you turn your back upon Catalonia, and are reminded at every step that you have entered a new kingdom. The red cap and the black velvet breeches are no longer seen, but in their stead a black

velvet bonnet peaked like the mitre, and short white trowsers, called *bragas*, reaching more than half way down the thighs. The face of the country is likewise changed, more hilly, and broken by torrents, not altogether barren, but uncultivated, and left desolate. For many miles together there is neither house, nor tree, nor man, nor beast, except a few straggling carriers with their mules, and by the road side are seen wooden crosses, to mark the spot where some unhappy traveller lost his life. The passengers think it a work of piety to cast a stone upon the monumental heap; according to some, as a mark of detestation and abhorrence of the murderer, or, as others think, to cover the ashes of the dead. This, in all ages, and by every nation, has been considered as a deed of mercy, because, to remain unburied was regarded as the greatest misfortune and disgrace. The *inops, inhumataque turba* was supposed to wander on the banks of the Styx, excluded from the Elysian fields, restless and miserable, one hundred years, unless their bones were previously covered, Virgil, *Æneid* vi. ver. 325. Whatever may have

have been the origin of this practice, it is general over Spain, and round most monumental crosses is seen a heap of stones.

All the way from Lerida the deep ravins shew limestone rock in strata, which are separated by sand & clay.

Having crossed the Cinca, and passed through Fraga, which is built in one of these deep ravins, we begin to ascend the mountains, where we see the same horizontal strata of limestone, with clay between them. These mountains produce only aromatic herbs.

In traversing this barren country, a conjecture naturally arose, that Catalonia either acquired sovereignty before the establishment of Arragon, or that the people, by whatever name they were distinguished, were more warlike than their neighbours; for had the kingdom of Arragon, if, referring to distant periods, we may call it by that name, been founded first, or had the inhabitants excelled the Catalans in strength and courage, they would have left these mountains, and would have extended their dominion to the east.

The first night after we had crossed the
Cinca

Cinca we lay at Candafnos, a miserable village without one convent, a circumstance which sufficiently bespeaks the extreme poverty of its inhabitants.

Round this village I observed abundance of flints, such as we find among the chalk in England, much limestone, and some gypsum. The inhabitants employ themselves in collecting and washing earth for the purpose of extracting the nitre & sea salt, which it contains in great abundance.

I was much diverted to see the astonishment with which these aborigines viewed one of our fellow-travellers, a Frenchman, but a colonel in the Spanish service. They are a diminutive race, and he is six feet six inches high, stout, well made, and of a soldier-like appearance, yet he could scarcely make them keep their distance. These pigmies are no strangers to gallantry, as we all could testify; for, as ill-luck would have it, opposite to us there lodged a fair one, for whom a desponding lover had prepared a serenade. No sooner had the village clock struck twelve, than he began to sing the praises of his mistress, beating time upon the discordant strings of his guitar.

It

It is impossible to construct a scale of sensibility or taste, or to ascertain precisely to what degree the ear is tuned to harmony; but should such a scale be formed by any one who has never heard these ditties in some of the villages of Spain, like Fahrenheit with his thermometer, he will be inclined to place his lowest point abundantly too high.

By the time this lover had retired to his rest, we were obliged to rise, and to prosecute our journey.

From Candasnos we traversed a barren plain of gypsum, twenty miles, without seeing either house, or man, or beast, or bird, or tree, or bush, except only in one spot, where, to my astonishment, on apparently the same kind of soil, the olive flourished.

At the end of this tedious morning we came to a single house or venta, in which we were to dress our dinner. Here we found a party of soldiers stationed to scour the country, and to pursue the robbers, who had been accustomed to consider this part of Arragon as abandoned to them, with full liberty to plunder all who should venture

ture to pass through it. The soldiers knew our colonel, and offered to escort us on our way; but as we had three officers, all well armed, we did not think it needful to accept their kindness.

Whilst the dinner was preparing, I took the opportunity of climbing a hill, at no great distance, which commands a most extensive prospect; but in that vast expanse, far as the eye could reach, nothing was to be seen but a naked gypsum rock. It is here that nature seems to sleep, and to have slept some thousand years; or at least it is here that she has either neglected or forgotten her accustomed operation in forming vegetable earth. Turning from the dreary landscape, I hastened back to dinner, satisfied that nature never appears so beautiful as when her face is covered with a veil.

Having dined, we proceeded on our way, and till we began descending to the Ebro, had nothing but the gypsum rock in sight, excepting for some short intervals, when we saw the more fertile limestone. The whole of this gypsum is crystalized.

When we had reached the plain, which

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is watered by the Ebro, we left that river to the left, keeping the gypsum mountains on our right till we came near to Zaragoza, where the valley widens, and where very considerable hills, entirely composed of flints, interpose between the river and those barren mountains.

As we approach the city, the prospect brightens, the hills on our right shew the hanging clusters of the vine, and the margin of the Ebro is covered with luxuriant crops of corn interspersed with olives. Here the wines are excellent, more especially in dry seasons ; but these do not yield as good brandy as the weaker wines of France. Indeed it is a pity that such generous wines should ever be distilled.

In long journies it is usual to give the mules one day's rest about the middle of the way. Happily for me this place of rest was Zaragoza, being fifty computed leagues from Barcelona, and fifty-two from Madrid. Each league is about four miles and a half.

Zaragoza, by ancient Spanish authors written Caragoça, and by the Romans called *Cæsarea Augusta*, is a great wealthy city

city on the Ebro, at the conflux of two other rivers, one running from the north, the other a considerable stream descending from the mountains of the south.

Immediately on my arrival I visited the cathedrals. Here I forgot all the hardships and fatigues which we had suffered in this long journey; nay, had I travelled all the way on foot, I would have freely done it to enjoy the sight of these cathedrals: that which is called *El Afeu* is vast, gloomy, and magnificent; it excites devotion, inspires awe, and inclines the worshipper to fall prostrate, and to adore in silence the God who seems to veil his glory; the other, called *El Pilar*, spacious, lofty, light, elegant, and cheerful, inspires hope, confidence, complacency, and makes the soul impatient to express its gratitude for benefits received.

In the centre of this cathedral there is an edifice which is strikingly beautiful. The principal front is a chapel of our Lady of the Pillar, who appeared upon this very pillar to St. James, and afterwards gave to him the image which is worshipped at her altar. Over this there is a dome corresponding

sponding to the great dome, under which it stands, serving by way of canopy to the image of the virgin. The three other fronts of this elegant tabernacle are in like manner chapels. Besides the great dome, there are many smaller domes surrounding it, each with elegant paintings in compartments, the subjects of which are historical, taken from the sacred writings, or from the legends of the saints, to whom the chapels and altars are dedicated. These are executed by D. Francisco Bayeu, first painter to the king; and the architect, under the inspection of whom these domes have been constructed, is Rodriguez, of whose taste and judgment these decorations and improvements will remain a lasting monument.

The wealth of this cathedral is inestimable, in silver, gold, precious stones, and rich embroidery, sent by all the catholic sovereigns of Europe to deck its priests, and to adorn its altars. Many of these presents being modern, are worthy of attention for their elegance, as well as for the value of their pearls, diamonds, emeralds, and rubies. In a word, whatever wealth could

command, or human art could execute, has been collected to excite the admiration of all who view the treasures of this church.

Among the other objects worthy to be seen is the church called *Engracia*, whose patron saint is said to have walked a league, carrying his head in his hands, talking all the way, and in this manner presented himself at the gates of his convent. In this church they shew an original painting by St. Luke with many other relics, equally authentic, and not inferior in their value.

Straitened for time, I could take only a cursory view of the environs. In a country like this no living rock is to be expected, nor any thing but what has been moved; the spoils of various mountains brought down by the rivers, and blended here together. The chief deposit in this place is limestone gravel, and on that the city stands. It is much to be lamented that they have neither stone for building, nor good clay for bricks; hence all their churches, not excepting the beautiful cathedral, shew cracks from top to bottom. The cement is good, and abounds upon the spot, as may be seen by the bottom of the
 3 river,

river, which is a bed of gypsum, commonly used here for making plaster.

Had the time permitted, I should have visited all the buildings recommended to my notice, the convents of S. Ildefonso, S. Francisco, the Dominicans: not to mention thirty-seven others less worthy of attention, with the Audiencia, the Torre nueva in the great square, built by the Moors, and the Torre del Aseu, which was a mosque. Short as was our stay, I stood long contemplating the beauty of the bridge over the Ebro, of six hundred feet, with its centre arch of one hundred, and at last turned from it with regret.

I had brought a letter for general O' Neile, the governor, but unfortunately he was absent at Madrid. This loss was in some measure made up to me by the attention of my valuable friend, the young Spaniard, who had connections in Zaragoza. With him, when I had finished my excursions, I went to drink lemonade and chocolate at the house of the fiscal civil, and afterwards we supped together at don Philip de Canga's, the fiscal criminal, both

men of good understanding, and well informed.

Could I have known beforehand that so many objects worthy of attention were to be met with in this city and its vicinities, I would have laid my plan to have made a longer stay, and should have derived more advantage from the conversation of these gentlemen.

Among other particulars, they gave me this account of their university: it contains near two thousand students, and for **their** instruction the doctors constantly residing are, forty in theology, twenty for the canon law, thirty-six for civil law, seventeen for medicine, and eight for arts. The foundation of this seminary was laid A. D. 1118, on the expulsion of the Moors; but the university was not incorporated till A. D. 1474, and from that period it has constantly been cherished and protected by the sovereigns of Arragon.

Near this city passes the famous canal of Arragon, designed to form a communication by the Ebro from sea to sea, between S. Ander, in the bay of Biscay, and
Tortosa,

Tortosa, on the borders of the Mediterranean, a distance considerably more than one hundred Spanish leagues. This, perhaps, is one of the most arduous undertakings that ever was conceived; to make the communication through the whole extent by water is hardly possible, or, if possible, is by no means desirable; because, in passing the mountains of Biscay, which are a continuation of the Pyrenees, only from Reinosa, at the head of the Ebro, to the Suanzes, which flows into the bay near S. Ander, in the space of three leagues, the fall is three thousand Spanish feet. Establishing therefore magazines at Suanzes and Reinosa, with a carrying way between them, from Reinosa they will navigate the Ebro. They have a great command of water: the head of the Pelilla has more than forty large fountains in the space of one hundred yards in length, by forty in breadth, spouting up to a considerable height. This river does not run four hundred yards before it enters the Ebro, which has only three fountains, but these considerable.

It is remarkable, that between Fontibre

(Fons Ebri) and Reinosa, there is a salt lake.

The Ebro is navigable from Logrono to Tudela; and the canal, which begins at Tudela, is finished as far as Zaragoza; from whence it will be carried ten leagues lower before it enters again into the Ebro. At Amposta, below Tortosa, there is another canal, which opens into the bay of Alfarques, to obviate the inconvenience which arises from the frequent shifting of the bed of the Ebro, near its mouth. Not far from Zaragoza, the canal passes the mountain of Torrero by an open cast of forty feet the mean depth, for more than a quarter of a league, or about one mile in length. The twelve leagues which they have finished from Tudela, cost sixty millions of reals, which in sterling is six hundred thousand pounds; the twelve leagues are nearly equal to fifty-three miles English, upon a supposition that they are statute leagues of twenty-five thousand Spanish feet; but if we suppose them to be ordinary leagues, of six thousand six hundred varas each, the twelve leagues will be only forty-two miles and a small fraction. On
the

the former supposition, the expence will be found eleven thousand six hundred and eighty-two pounds four shillings per mile, or six pounds twelve shillings and eight pence per yard. This expence appears to be enormous; but if we consider that the canals in Spain are nine feet deep, twenty feet wide at bottom, and fifty-six at top; and if we consider the cutting through a mountain open cast more than a mile, we shall not think it unreasonable.

In a calculation which Mr. Whitworth made for a canal to be made from Salisbury to Redbridge, A. D. 1771. he supposed the depth four feet and an half, and the width at bottom fourteen feet. In these circumstances he allowed three pence halfpenny for every cubic yard; but had the canal been deeper and wider, he must have made his estimate double, treble, or even more, not merely according to the quantity, but in proportion to the distance to which that quantity must be removed, and the perpendicular height to which it must be previously raised. Mr. Whitworth's canal does not contain more than ten cubic yards in each yard in length,

and a considerable proportion of this may be done merely by the spade, without the aid of either pick-axe or barrow; whereas the Spanish canals contain near forty-nine and one ninth cubic yards in each yard in length, the greatest part of which is to be moved to a great distance, and from a considerable depth, increasing commonly in hardness in proportion to the depth.

This however will serve to shew the wisdom of our people in the north of England, who by experience have learned to make their canals very narrow. With them three boats of thirty tons are preferred to one of ninety; and to carry thirty tons, they construct their boats about seventy feet long, seven wide at top, and six at bottom; drawing four feet of water. But such contemptible canals would not suit the ambition of a Spaniard, nor coincide with his ideas of grandeur.

As we crossed this canal near Zaragoza, on our way towards Madrid, we stopped to examine the works; and I must confess that I never saw any so beautiful or so perfect in their kind as the locks and wharfs; nor did I ever see men work with greater spirit,

spirit, or in a better manner. The number of men employed is three thousand, of which two thousand are soldiers, the others peasants; to the former they give three reals a day in addition to their pay; but they work mostly by the piece, and receive what they earn.

As we increased our distance from Zaragoza, we quitted the flat country, and began to climb between the mountains, which at a lower level shew horizontal strata of limestone, whilst all the summits, both near us and at the greatest distance, are evidently gypsum. In the vallies we found clay and flints, such as our chalk commonly produces. These circumstances lead to a suspicion, that the gypsum on these high mountains was once chalk, although now saturated with vitriolic acid.

We dined at *Muel*. In this little village are many potters, who turn their own wheels, not by hand, but with their feet, by means of a larger wheel concentric with that on which they mould the clay, and nearly level with the floor.

Proceeding after dinner, we left the gyp-

sum mountains at some distance, till we approached *Longares*, which is seven leagues from *Zaragoza*, where this ridge dies away, and leaves before us a wide extended plain, bounded by distant hills. The soil is clay, with gravel of flint, silicious grit, and white quartz, more especially along the middle of this spacious vale, in which there appears a bed of it all smooth and polished, as we see in brooks subject to strong land floods and torrents. This plain produces most luxuriant crops of corn, with vines, and abounds in sheep.

At eight in the evening we arrived at *Carinena*, one league from *Longares*, having travelled our eight leagues, which is the usual journey: this we may reckon six and thirty English miles.

Here one of our countrymen left a history behind him, written in English, on the wall, for a warning to those who may chance to follow him. In the night, two men attempted to rob him in his bed; but he happily awoke, and starting up, knocked one down, and made the other fly. The one whom he knocked down was servant
to

to a French officer with whom he was travelling, the other was one of the coachmen. From the observations I have had occasion to make in Spain, I am of opinion, that no gentleman should sleep in a room alone, unless he has made fast the door.

The wine which this country produces is of the finest quality, and I have no doubt will be much coveted in England whenever the communication shall be opened to the sea.

Carinena contains two thousand and thirty-six souls, and has two convents. From hence we proceeded along a fruitful bottom, covered with vines and olives, then ascending among mountains, we found, at a lower level, schist with its lamina standing perpendicular, and soon after silicious grit, inclined to the horizon, then limestone rock.

In this country we pass vast tracts of land susceptible of cultivation, which, I have no doubt, will be one day covered with luxuriant crops, although at present we see little besides the *quercus coccifera*, and a few aromatic herbs.

Crossing

Crossing the river Xiloca, at the distance of five leagues, we came to Daroca, where we dined.

This city, inclosing within its walls two thousand eight hundred and sixty-three souls, is built in a ravin, and would have been swept away by torrents, had not the inhabitants made a drift of six hundred yards through the heart of a mountain, to open a communication with the river. This work is worthy of inspection.

Daroca appears to have been always of importance, as the fortifications, although now decayed, sufficiently evince. It formerly occupied the hills for safety, but now it has crept down into the vale for shelter.

The rocks, which are here laid bare, are schist, covered with limestone.

Climbing among these, it is beautiful to look down upon the vale, which feeds the city, every where shut in by uncultivated mountains, itself well watered, covered with deep verdure, and loaded with the most luxuriant crops. To view such a strip of land excites a wonder how the inhabitants can live.

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The exquisite beauty of this spot, and the protection which it offered, were powerful attractives to the priests and to the religious orders, who in this city have no less than six convents and seven parish churches, of which, one is collegiate, although not a bishop's see.

After dinner we ascended to much higher mountains, in which the schist and the filicious grit appear in strata, inclined to the horizon in every angle, and in every possible direction. All nature here seems to have suffered the most violent convulsions.

These mountains must certainly abound with minerals, of which we see every mark but the mineral itself. Indeed, when the Romans settled here, it was with a view to mines. From the nature of the rock, and from the peculiar appearance of the schist, I have no doubt that tin is not far off.

We are here on the highest land in Spain, with the water falling behind us into the Ebro, whilst immediately before us it runs into the Tagus.

When we begin descending to the south west, we observe a deeper soil, fewer crags, and the strata more inclined to the horizon,

horizon, than we found in the declivity to the north and to the east. This circumstance will appear perfectly natural, when we consider that in the latter direction the water does not run much more than one hundred miles before it enters the sea; whereas in the former it must go nearly six hundred miles to find the ocean. Yet this circumstance alone will not account for the confusion which appears in all the strata as we ascended from Daroca; the sea shells which every where abound in the limestone, wherever it is found on these high mountains, prove sufficiently that this country was once covered with the sea.

Without entering at present on the different solutions which have been given of these phenomena, I shall only transiently observe, yet I wish it to be remembered, that these strata are not now in the same position in which they lay when the whole peninsula was covered with the waters of the sea.

On these mountains, both in the morning and the afternoon, we observed many monumental crosses, each placed near the spot on which the unwary traveller had
been

been robbed and murdered, or had met with some fatal accident. At this, considering the nature of the country, I was not surpris'd; but I must own my blood ran cold when I saw some crosses in the villages through which we pass'd. Their numbers sufficiently evince, not only a bad disposition in the inhabitants, but a bad government. No people can be more passionate than the Welch, yet in Wales we seldom hear of murder; they do not thirst for blood, and should any one feel himself provok'd to take away another's life, he would tremble at the laws. But in Arragon, this crime often passes with impunity, unless as far as one murder is the parent of another.

The *escrivanos*, who perform the office of coroner, are many of them poor, hungry, rapacious, and destitute of principle; and without them no evidence can be received. These venal wretches are commonly prepared with equal indifference to sell justice or injustice to him who offers most; and all over Spain they have free scope in the country towns, because few gentlemen live
in

in or near a village, to protect the peasant, being mostly resident in cities.

We lay in the miserable village of *Uset*, the last in Arragon, and two leagues from Daroca.

Having neglected to lay in provisions before we left that city, we began, for the first time, but not the last, to suffer want, and to murmur at the inattention of our captain. When we left Barcelona, a common fund was made to pay the expences of the journey, and we immediately proceeded to the election of a treasurer. The parties were our colonel, a Frenchman, tall, handsome, elegant in his manners, sensible, well-informed, perfect master of the language, and well acquainted not only with the mode of travelling in Spain, but with the precautions needful to be taken by those who would pass with any comfort from Barcelona to Madrid. Naturally our choice should have fallen upon him, but unfortunately there were objections which every one felt, but which no one dared to name. As a stranger, and as ignorant of the language, I was out of the question.

question. Of the Spanish gentlemen, one was a cadet in the army, lively, sensible, and of the noblest disposition; but being not more than fourteen years of age, he likewise was rejected. The other gentleman, under whose wings the cadet travelled, was a Spaniard of a certain age, a captain in the army, and therefore accustomed to travel; of a grave deportment, and for integrity worthy of the confidence which was to be reposed in him; but—(for in every character there is some but)—he was a bigot. Naturally austere, silent, and reserved, his religion taking its complexion from his temper, he became severe, morose, and seemed to cherish a cold indifference to all the comforts of this life both for himself, but more especially for his friends; yet in him all our suffrages met; he was to keep the purse, to pay all expences, to render an account, which he did with the most exact fidelity, and to make provision for the journey, where provisions were to be procured; but this he neglected, although his coadjutor, the colonel's valet, was active, and always ready to run at his command to the butchery for flesh, to the baker's for bread,

bread, and to the vintner's to purchase wine. With a good look out we might have had hares, partridges, rabbits, and poultry in abundance; whereas, by neglect, before we reached Madrid, we were half starved; and yet our journey cost much more than with good management would have made us comfortable.

In the morning, when we were ready to leave Uset, this was the manner of discharging the account: the mistress of the house, supported by some female, made her approach at first with a low voice and with a modest air. The captain, supported by his colonel, who upon occasion could look very fierce, repelled the charge, and exclaimed against the exorbitancy of the demand. The mistress, appealing to the maid, who was prepared to defend her moderation, by degrees raised her voice, and became violent almost to fury. The captain sputtered, and the colonel sometimes put in a word to allay the storm, whilst the cadet stood laughing at a distance, till at the end of about twenty minutes the storm suddenly subsided, the landlady looked placid, and quietly accepted
one-half

one-half of the original demand. If in the outset our captain had with calmness asked for the *arancel*, all this trouble had been saved, because every publican is obliged to have one hung up in his house, and in that the price of every article, with the *ruido de casa* (noise of the house) and beds, is fixed by the magistrate.

This business being ended, every one took his corner in the coach, the coachman clacked his heavy whip, and the moment we began to move, the cadet, looking upon his mentor, crossed himself.

Our way lay across an extensive plain, bounded by distant hills, in which the soil is sand and gravel, covering a limestone rock. The ascent to these hills is very easy, and the hills themselves are susceptible of cultivation; yet they are desolate, and for miles discover neither house nor tree, except the juniper.

At eleven in the morning we arrived at *Tortuera*, having travelled four leagues to dinner. This little village, the mansion of wretchedness and misery, is built upon a rock of marble, such as would not disgrace a palace. The sun was shining very bright;

not a cloud was to be seen ; yet these poor peasants filled the church, each with his lighted taper, prepared to join in a procession.

The ploughs of this district are much degenerated from the perfection of those at Barcelona. The handle, the share, and the share iron, all pass through one mortice in the beam, which is made crooked for that purpose. All these are fastened by a wedge. It is scarcely possible to see a rougher implement, without coulter, fin sheets, or mould board; but instead of this, two pins, one on each side, driven into the heel of the share.

All the way over the mountains, till you come near to Anchuela, the limestone prevails, charged with fossil shells, such as oysters, entrochi, and belemnites, with terebratulæ and chamæ. A little to the south of this, near Molina, on the mountains between the Xiloca, which goes into the Ebro, and the Gallo, which joins the Tagus, under the limestone they find a red gypsum, containing also fossil shells. It is remarkable, that this gypsum, decomposing and losing its vitriolic acid, crystallises in hexagonal prisms

prisms of a red colour; of these I collected many of different sizes, which ferment with the nitrous acid.

All the way over these desert mountains, with their interposing vallies, not one object presents itself to cheer the weary traveller; no house, no tree, except the savin, the juniper, and a species of cedar, which is peculiar to this country; but from time to time a monumental cross reminds him of mortality.

We, indeed, had little cause to fear, because we were well armed, excepting when we chose to walk, and to leave the coach behind us. Some officers who passed this way, being at a distance from their carriage, in which, little suspecting danger, they had left their swords, upon entering a wood they were suddenly attacked and robbed by a banditti, who immediately escaped into the thicket, and were seen no more. One morning, when we had walked before the carriage, and I had got the lead, fearful of being too far a-head, I looked back from time to time, taking care never to be out of sight of our captain, who was following at a distance; but finding myself entering

upon a forest, I shortened sail, and recollecting the story of the officers, I turned oftener than usual to look behind me, when suddenly, having lost sight of my companion, I soon discovered him again, but out of the road, and running very fast. Not being able to imagine why he ran, whether we had missed the way, or whether he was escaping for his life, I pursued him over the hills, and through the bottoms, where it was not possible to know which way I should direct my course to catch him, till I had the happiness to see him stop. When I came up to him, I found that our cadet had wandered from the way, and had taken another road. Fortunately for him, his good mentor saw him, pursued him, and brought him back again. When we were thus together, all my apprehensions vanished, and we leisurely returned into the road which we had quitted; but here a new perplexity arose; for, from the summit of a hill, which had a commanding prospect, we could see nothing of the coach, nor could we determine if it were before us or behind us. At last, not being able to discover the track of the wheels, we walked half way back

to

to the village from which we had departed, where we found the coach sticking in the mire, and some peasants engaged with their implements, working hard to set it free.

The country contiguous to Anchuela, compared with the uncultivated mountains of Arragon, appears a Paradise. The limestone rock is covered with a deeper soil, and the little hills are cultivated to their summits; yet Anchuela is a most miserable village, and in the posada there is only one room, with two filthy beds. When beds are wanting, officers use their privilege, and are billeted by the alcaidé on some private family.

In walking out to view the country, I found on the ploughed land abundance of cockle-shells and cardias.

The plough is precisely the same as that last described. An English mechanic will not readily conceive how a plough can be made, not only without coulter, drock, ground-wrist, and mould-board, but without any sheets to support the handle and the share. To construct such a plough would puzzle their invention; yet nothing

can be more simple, for the beam itself being curved, supplies the place of sheets.

In leaving Anchuela, Tuesday, May 16, we sent the carriage forward, and walked by a much nearer way to meet it, winding through a valley which is shut in by swelling hills, and directing our course by a rivulet whose waters are as clear as crystal. The sides of these hills are shaded with savin, juniper, and the *ulex europæus*.

This would be a beautiful situation for a nobleman's seat: here he would have plenty of wood and water, with corn, and wine, and oil, in great abundance, whilst the money which he spent in the maintenance of a great establishment, circulating among his tenants, would cherish their industry, and animate the whole country for many miles around him.

Throughout the whole of Spain I cannot recollect to have seen a single country residence, like those which every where abound in England: the great nobility surround the sovereign, and are attracted by the court; the nobles of inferior rank or fortune are either assembled at Madrid, or establish themselves in the great cities of
the

the distant provinces. This desertion of the country has arisen, not as in other kingdoms, from the oppression of the great barons, and from the franchises enjoyed by cities, but from two other causes more extensive in their operation. The first of these was the distracted condition of the empire till the reign of Ferdinand and Isabella, divided into separate kingdoms of small extent, all engaged in never-ceasing wars against each other, which drove men of property into the cities; the second, was the jealousy of the court, which soon followed the expulsion of the Moors; a jealousy which for more than a century and an half was merely political, lest the grandees, supported by the people, should endeavour to regain their consequence. To this fear, at the accession of the present family, succeeded one of a more alarming nature; from the attachment which many of the great families had discovered to the house of Austria. For this reason they were assembled round the throne, and kept constantly in sight. The condition of the French is certainly better, and some inhabited castles are to be found in every province.

vince. But, in this respect, no country can be compared to England. If the causes were to be assigned for this equal diffemination of wealth, which appears in the delightful mansions of the great, and the seats of country gentlemen, scattered over the face of the whole island; of that which is to be seen in all our cities, great towns, and even country villages; which meets the eye in every farm house, and which shews itself in the high state of cultivation, in our agricultural improvements, in the flocks, the herds, and the luxuriant crops with which our fields are covered, the leading cause would probably be found in the constitution of our government, not merely as securing life, liberty, and property, but as making it necessary for the first nobility to cultivate their interest in the country, if they will preserve their influence at court. By residing on their own estates, they not only spend money among their tenants, which, by its circulation, sets every thing in motion, and becomes productive of new wealth, but their amusement is to make improvements. By planting, draining, and breaking up lands, which would have remained

remained unprofitable, they try new experiments, which their tenants could not afford, and which, if successful, are soon adopted by their neighbours; they introduce the best breed of cattle, the best implements of husbandry, and the best mode of agriculture; they excite emulation, they promote the mending of the roads, and they secure good police in the villages around them; being present, they prevent their tenants from being plundered by their stewards; they encourage those who are sober, diligent, and skilful; and they get rid of those who would impoverish their estates. Their farmers too, finding a ready market for the produce of the soil, become rich, increase their stock, and, by their growing wealth, make the land more productive than it was before; nay, their tradesmen, when they get money, which is not wanted to increase their peculiar stock, either lend it to the farmer, or themselves purchase land, and bury their treasures in the earth; yet not like that which is hid by the miserable slaves of a despotic government, to remain unprofitable,

ble, but to produce, some thirty, some sixty, and some an hundred fold.

The country which we passed over between Anchuela and Maranchon, in its appearance and in its calcareous rock, resembles that which is about Atford, in the road to Bath, or rather like that which is round Keinsham, between Bath and Bristol.

Maranchon, remarkable, like other villages around it, for the poetic fire of its inhabitants, is a little village situated on a declivity, sheltered from the north by high limestone rocks, but open to the south, and looking down upon the rich valley by which it is fed. The soil is dissolved limestone, with sand and clay, forming a most fertile marle. At this season it is all alive; I counted forty ploughs at work, all employed in preparing for their peas.

Having observed the resemblance between this country and that which is to the east and to the west of Bath, I felt a peculiar pleasure in picking up on the ploughed land, belemnites, cockles, and cardias, with other bivalves, and fragments

of the pisolite, of the same species and of the same colour with those which I had formerly collected at Keinsham, Atford, Wraxal, Melksham, and on the adjacent hills.

After dinner we left Maranchon, and, in about three or four miles, lost the limestone, which was succeeded by silicious grit of a peculiar texture, somewhat like bran. This, however, did not continue, for at *Aguilarejo* we passed between two high rocks of fine grit, or sand stone, very white, with the strata inclined to the horizon, in the angle of forty-five degrees. The country we passed over between these two miserable villages, after quitting the rich valley of Maranchon, is little cultivated, and, excepting two woods, the one of oak, the other of ilex, is naked and unprofitable, although these woods shew sufficiently what the country could produce.

Near to *Aguilarejo* the crops of wheat appear half starved, and the fields are covered with the wild ranunculus.

This day we saw five monumental crosses, one coming out of a wood, one at a place where four ways met, the rest on the sum-
mits

mits of the hills, from whence the robbers could see every thing that was passing on the road, and know which way to escape.

We slept at *Alcolea*, having travelled, according to the *Guia de Caminos*, only six leagues and a half since three in the morning. I should conceive that the leagues here, like the miles in distant provinces with us, are longer than the legal measure.

The country about *Alcolea* is covered with corn, excepting only some few hills, which, shaded by the ilex and the juniper, present a never-failing verdure.

As we proceeded, ascending among the hills, at the distance of a few miles from *Alcolea*, culture ceases, and the country is abandoned to the ilex, the ulex europæus, and the quercus coccifera, these last diminutive, but the first respectable.

The roads are here most detestable. The Spanish nation is tenacious of its freedom from the *Corvè*; but this appears to me bad policy. After feeding the peasant, who cultivates the soil, the first surplus of revenue should be applied in making roads to carry the crops to market. Farmers, if left to themselves, will never pay attention,
nor

nor expend their money, their labour, and their time, on this most important object; and in Spain, the gentlemen of landed property, being confined wholly to the cities, neither feel the want of roads, nor see their interest concerned in having them repaired. It is the landlord in every country who ultimately bears this expence, and it is he who principally reaps the benefit.

As we approach *Algora*, the filicious grit, or sand stone, which has continued all the way from Aguilarejo, gives place to limestone charged with fossil shells.

In this village the church is the only object which can give pleasure; it is very pretty.

Beyond this the country becomes inclosed with limestone fences; but although inclosed, it seems to be left uncultivated, covered in general with stones, and abounding with oak, ilex, juniper, the *ulex europæus*, the *lavendula spica*, the common thyme, and the *genista*.

Here, for the first time since we left Barcelona, we saw horned cattle feeding.

We passed by three monumental crosses, all at the junction of four ways. In a country

country where few people travel, a thief has little chance of passengers, unless where two ways cross.

As we drew near to *Grajanejos*, we travelled over an extensive plain of open field land, well cleared, and all in corn, bounded by a forest of the most luxuriant ilex, through which we passed, not without circumspection as we entered, and when we were about to quit it.

Grajanejos is built upon a rock of limestone, looking perpendicularly down upon a fertile little vale, above which it is elevated more than three hundred feet. The situation is romantic, and the valley has the appearance of a ravin.

They have here no beef. Mutton is eleven quarts, or a fraction more than three pence per pound of sixteen ounces. Bread three quarts and a half, or one penny nearly. Labour is four reals, or less than ten pence a day.

In conversing with the *padre cura*, that is, with the rector, I learnt that he had sixty houses in his parish, two hundred and forty communicants, beside one hundred children under the communicating age, which

which is eight. All above this age are compelled to confess, and to receive the sacrament. His living is worth eight hundred ducats per annum; a considerable benefice for Spain, being equal to £.87. 17s. 8d. sterling.

May 18. From Grajaneros we crossed an extensive plain, and passing through a forest of ilex, entered upon a level country, in which, for many miles, we saw neither tree, nor house, nor any token of human existence, except one monumental cross. But after this, as we got within the influence of Guadalajara, we met with flocks of sheep, good corn, and sandy banks covered with vines, which to us had all the charms of novelty. Descending to a lower level, we discovered a vast expanse before us, bounded by snowy mountains to the north. In this fertile vale plenty seems to have established her dominion, and to be constantly replenishing her horn with corn, and wine, and oil.

Guadalajara is divided into ten parishes, and is said to contain sixteen thousand souls, with fourteen convents. It is rendered famous by the royal manufacture of broad cloth,

cloth, and is remarkable for the species of cloth made of the Vigogna wool. Here the king employs near four thousand people, to whom he pays monthly six hundred thousand reals, or six thousand pounds, besides about forty thousand spinners scattered in the surrounding villages.

This manufacture was first projected by the Baron de Riperda, A. D. 1720, who brought workmen from Holland, but with very ill success; and Don Joseph de Carvajal, prime minister to Philip V. who attempted the same at S. Fernando, had in his day little more to boast of. During the war of 1740, the English government, with a view to distress the Spaniards, having prohibited the importation of their wool, the sudden stagnation had for the moment the effect desired; but new channels were soon opened, fresh markets were discovered, and the price of wool was considerably raised. To prevent such stagnation for the future, Mr. Wall, then in England, decoyed one Thomas Bevan, a skilful workman, from the town of Melksham, in Wiltshire, with many others, and established them at Guadalajara, where they contributed to raise the credit

credit of an expiring manufacture. Some years after this, Thomas Bevan, having met with ill usage, died of a broken heart; and in him this undertaking suffered an irreparable loss.

The conduct of the English, in refusing to purchase of their enemies this profitable article of commerce, reminds me of a measure equally politic adopted by the Spaniards with the same views, and on a similar occasion, when, during the *war of the succession*, they prohibited the sale of their wines, oil, and fruits, to the English and the Dutch.

A. D. 1755, government finding it impossible to derive a profit from this declining manufacture, delivered it over, together with the similar one established at S. Fernando, to the *Gremios*; but after a few years (A. D. 1768) the king once more undertook to manage both on his own account, and soon removed the sister manufacture from her former abode to *Brihuega*, still permitting her to retain the name of S. *Fernando*, as being well known and much honoured in the market.

If we may believe Ustariz, the infant undertaking, in his day, swallowed up the

whole of the provincial revenue, and yet was constantly in debt. This we may readily believe; because, if any individual were to conduct such an extensive manufacture on his own account, supposing him not to have been previously instructed in the business, although he should have been bred to trade, he would lose his money; a private gentleman would lose more, a sovereign most.

Considering what salaries must be paid, how little scope for diligence and parsimony, how much for negligence and rapine, and how very weak the inducement to excel, a sovereign can have no reasonable hope to multiply his gains. If he is to force a trade, and to establish a monopoly by the exertion of supreme authority, all these evils will increase against him, and the illicit trader will meet him to advantage. If he is fairly to stand a competition, the private tradesman, too active and too zealous for the sovereign, will seek out new markets, and by attentions, by civility, by acts of friendship, and by barter or reciprocal exchanges, gain the preference, whilst the sovereign, unless he sinks the price, will remain with his commodity unsold. Should the

the price be sunk low enough to force a market, the loss must be considerable, and no manufacturer will be able to rise up against the sovereign, whose capital is inexhaustible, or to stand the competition with him, who can afford to suffer loss without fear of bankruptcy.

Ustariz condemns all such establishments, and writes a chapter to prove “ que las fabricas de quenta de los soberanos no florecen ;” that manufactures on the sovereign’s account can never prosper. Count Campomanes cannot approve them : the principles which this able statesman labours to establish, have all much higher views, and lay a more certain foundation for national prosperity. His principles are applicable to every nation, whether rich or poor. He would, in the first place, diffuse knowledge by free-schools, under the conduct of the best masters, to teach drawing, mechanics, mathematics, chemistry, agriculture, and languages, with the theory of commerce, and of political œconomy ; he would promote justice and sobriety, diligence and parsimony ; he would encourage public spirit and œconomical societies ;

he would send young men, properly qualified, to travel, for the purpose of inspecting all the modern improvements in arts, manufactures, and commerce, adopted by more polished nations; he would render communication easy, by means of roads and canals; he would regulate the posts, and establish banks; he would provide plenty of fuel for manufactures, as being essential to their existence; he would honour the mechanic, the manufacturer, and the merchant; he condemns all monopolies, and all corporation privileges, as partial, oppressive, useless, and unjust; he would encourage strangers, and make naturalization easy to them; he would diminish the number of festivals, prevent the abuse of monastic institutions, encourage industry in convents, and employ in some profitable labour all who are confined in prisons; he would construct good harbours, quays, and wharfs, and cause sea charts to be formed with the most minute attention. To these wise regulations, recommended by that able politician, if we might venture to suggest any additional provisions, they might be these few: suffer the demand for money to regulate

late the rate of interest; encourage insurance among merchants and manufacturers; tolerate all religions; protect persons and property from real tyranny by civil liberty, and from private violence by wise laws enforced by an active and vigilant police; make commerce free, and live in peace. With these provisions, there could be no occasion for the sovereign to be a manufacturer, much less would he have any inducement to become the chief monopolist. These provisions not having been adopted by the Spanish government, the manufacturers of other nations can purchase the raw material, pay freight, charges, and heavy duties, and importing them into Spain, make considerable profits where the monarch suffers loss.

From Guadalajara to Alcala is four leagues. This city, watered by the Henares, and fed by a fertile and most extensive plain, is one of the prettiest in Spain. The buildings are of granite, of limestone, and of brick, and the pavement is of smooth round stones, mostly filicious, all the spoils of distant mountains. The arch-

bishop of Toledo has a palace here, the work of Covarrubias and Berruguete; in one front of which are eighty-two pillars, in the other fifty-two. The churches are thirty-eight, the colleges nineteen. One of these I visited with peculiar pleasure, as may be readily conceived, when I say that it was founded by Cardinal Ximenes. The library is well furnished; the books are excellent and well arranged. Among these the original Complutensian Bible must command for ever the grateful remembrance of the christian world. In this apartment are preserved his letters, his ring, his bust, and his picture; but these, though beautiful, faintly express the greatness of his mind, and the goodness of his heart.

From Alcala to Madrid is six leagues, in which space three rivers, the Henares, the Jarama, and the Manzanares, diffuse their fertilizing streams over a vast expanse of level country, by which considerable cities, together with the capital, are fed.

The approach to this from Alcala is beyond description beautiful. The road is spacious, and the gate is elegant. On the
left

left we look into the garden of the ancient palace, called Buen Retiro, with the botanical garden and the extensive alleys of the Prado, well planted and adorned with numerous fountains. On the right, through the trees, we catch a glimpse of another gate, whilst the wide street of Alcala, stretching gracefully before us, and bending in the line of beauty, contracts, as it advances up a gentle hill, thus discovering at one view some of the most considerable of the public buildings, and the habitations either of the first nobility or of the foreign ministers.

In this street is the *Cruz de Malta*, a large hotel, to which we drove, and where for the night, after my companions were dispersed, I took up my abode in solitude, with the reflection, painful for the moment, that I was come to my journey's end. It had been wearisome, and not altogether free from accidents and disagreeable adventures; but then, with an object constantly in view, every thing may be endured. Besides, in these fourteen days, I had got acquainted with my fellow-travellers, and for one of them had contracted friendship and esteem.

Even for the others, whilst thus united by one common interest, I felt regard; but now that our journey was at an end, the idea of dispersing to meet no more left a gloom which solitude was ill suited to relieve. At the end of a pursuit, a vacuum succeeds, which must be painful, till some new, some interesting object is in view, and gives fresh occupations to the mind.

On this occasion, I amused myself with reflections on the feelings of the ten thousand Greeks, when, having surmounted all their difficulties, and arriving safe in Greece, they immediately dispersed to go in search of new adventures. What misery must be theirs, whose views in life are closed. This appears to be the chief source of wretchedness in cloisters, where little scope is left for either hope or fear.

Before we parted we had to settle our accounts.

The coach, with two coachmen and seven mules, cost us by agreement thirty-five pistoles, or twenty guineas; and as a gratuity, we gave the men six pistoles, equal to three pounds twelve shillings. The expence upon the road for diet was eleven hundred

hundred and forty reals. The sum total, therefore, of our expenditure was six and thirty pounds; which, for a journey of a hundred Spanish leagues, accomplished in fourteen days, must be considered moderate.

M A D R I D.

AS the court was absent from Madrid on my arrival, all my letters were for the present useless, excepting one from M. Sage, of Paris, to Don Casimir Ortega, who, as principal botanical professor, is well known to all the lovers of that science. I had indeed a letter to a grandee of Spain, then at Madrid, with the strongest recommendation, and from him I had expected much; but I was disappointed in my hopes. I found him polite, but cold; sensible and well informed, but silent and reserved; universally esteemed for the goodness of his heart, but so perfectly absorbed in the formal duties of religion, that I could derive no advantage from his friendship. In a word, he appears to be one of those to whom the Italian proverb may
with

with justice be applied, *Tanto buon che val niente: so good that he is good for nothing.*

In Don Casimir Ortega I found the activity of friendship, and every possible attention. By his permission I had access at all hours to the botanic garden. This well chosen spot being upon a declivity, inclined towards the pardo, and separated from it by iron rails, whether you are walking or riding in that shady grove, refreshed by its numerous fountains, and unmolested even by the mid-day sun, you may at one view command the whole of it. In this spacious and well furnished garden I frequently amused myself in renewing my acquaintance with a science which I had formerly studied with delight; and whenever the professor gave lectures to his pupils, I constantly attended. My first elements I had learned under doctor Hope, who, as a botanist had acquired fame; but I must confess, that the method of Ortega appeared to me superior; and I am persuaded that his pupils, with moderate abilities, cannot fail to be proficient in this science.

He not only expects them to come prepared, and able to investigate each plant, so

as

as to trace it from class to order, genus, species, and variety, but he teaches them to draw up generic descriptions for themselves.

The merit of the master will soon appear in the productions of his pupils, who, with M. Dombey, have travelled over Spanish America, and are preparing to favour the world with their discoveries.

Such a pursuit, in the absence of the court, proved an agreeable resource, and, with the library of the Carmelites, helped to occupy my attention in both a pleasing and profitable manner.

At intervals, I walked about the town to obtain a general idea of it, before I descended to particulars. In my own mind I divided the whole into three portions, corresponding to three periods, easy to be distinguished. The most ancient is nearest to the river Manzanares, with narrow and contracted streets, crooked lanes, and blind alleys, like those still visible in London, but more especially in Paris, where no extensive conflagration hath consumed the rude monuments of art, erected by the remote progenitors who inhabited the infant city.

To

To the north and to the east of this, as you remove further from the river, the streets are wider, and the buildings affect some degree of symmetry. This portion includes the *Plaza Mayor*, or square, which in its day must have been a striking object, and terminates at the *Puerta del Sol*. But when Philip II. removed here with his court, and Madrid became the capital of his vast empire, the great nobility erected palaces beyond the former limits, and the *Puerta del Sol* is now the centre of the whole.

It is curious to trace the origin of cities. The shepherd pitches his tent, or builds his mud-wall cottage by the river side, because he cannot afford to sink a well; but man, being a gregarious animal, others, for the comfort of society, or for mutual protection, resort to the same spot, and build as near to him as possible. Cottages increase, tillage succeeds, manufactures follow, and the inhabitants, advancing both in number and in wealth, wish to enlarge their habitations; but, the ground being occupied, they have no other choice but to raise their houses higher. Whilst inhabiting the humble cottage, they never complained

plained for want of light or air; but now that they exclude each other's light, they wonder that their ancestors should thus have cramped themselves for want of room.

Madrid has fifteen parishes, seven thousand three hundred and ninety-eight houses, thirty-two thousand seven hundred and forty-five families, and one hundred and forty-seven thousand five hundred and forty-three individuals, sixty-six convents, sixteen colleges, eighteen hospitals, five prisons, and fifteen gates built of granite, most of which are elegant. The principal arch of the Puerta de Alcala is seventy feet high, and the two lateral ones are thirty-four, all well proportioned. It is by Sabatini, and does credit to his taste.

In looking for good pictures, I began with *los Carmelitas descalzos*, taking for my guide the excellent works of Antonio Ponz, and of Raphael Mengs. In the sacristy are found some works of the best masters, of Titian, Vandyke, Rembrandt, Coëlle, Ribera, Jordan, Murillo, Zurbaran, and of André Vacaro. The claustre is by Velazquez.

The

The church and convent of *S. Francisco de Sales* were built in the reign of Ferdinand VI, and here we see his monument, by Sabatini, with that of his queen, Barbara of Portugal. The dome and the arches were painted by the three brothers *Velasquez*. The great altar has six Corinthian pillars of green marble, like the verde antique, from Sierra Nevada, near Granada, of single blocks, each seventeen feet high; the base of the capitals are brass gilt. There are some tolerable pictures by Francis de Muro, and Cignaroli. The treasures of this convent are considerable.

The church of *S. Pasqual* has the Visitation, by Jordano; St. Stephen, by Vandike; Christ scourged, by Alexander Veronese; a Pope, by Titian; a Holy Family, by Leonardo da Vinci; Pope Gregory, St. Ignatius Loyola, and F. Xavier, by Guercino; the Adoration, by Paul Veronese; John beheaded, by Mich. Angelo Caravaggio; and five others, by *Ribera*.

The church of *S. Isidro*, which belonged formerly to the jesuits, strongly marks the character of that society, not only by its size, but by the taste which appears both
in

in the building and its ornaments. In my opinion it is the most elegant of any I have seen since I left Zaragoza.

The pictures, although not of the first masters, are yet not to be despised.

The great church of *S. Francisco* is admired by the best judges; but to me the vast dome and the Grecian arches, wholly destitute of ornaments, appear unfinished, naked, cold, and void of taste.

The day after my arrival, near the *Puerta del Sol*, looking for the *Calle de la Montera*, without Spanish enough to enquire the way, a gentleman who saw my difficulty, spoke to me in English, and desired to know what street I wanted. Upon being informed, he conducted me to the house where I was going, and when he took his leave, invited me to dine with him. This gentleman was Don Francisco Escarano, one of the postmasters general, who, in return for civilities received in this country, when he was secretary to the embassy, thinks he can never do too much for any Englishman who needs his assistance. Not satisfied with thus marking his attention, he conducted me to the king's
palaces

palaces at Madrid; and, as long as I remained in Spain, he never lost an opportunity of rendering me substantial services.

The palace of the *Buen Retiro* is a vast pile of buildings, very ancient, long deserted, and, when I saw it, verging to decay. It contains some spacious apartments, in which there still remain some few good pictures, but the three things which gave me most satisfaction were, the theatre, the great saloon, and the equestrian statue of Philip IV. This statue, cast by Pedro Tacca, of Florence, and said to weigh nine tons, is supported by the hind legs alone. I never saw nor can conceive any thing more perfect, or which appears so animated, as this prodigy of art.

The theatre is vast, and opens into the gardens, so as to make them, upon occasion, a continuation of the scene. Here Ferdinand VI. frequently amused the public with operas, of which his queen was extravagantly fond.

The great saloon, called *el Casón*, with its antichamber, painted in fresco by Luca Jordano, remains a monument of his taste, invention, judgment, and imitative powers.

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In the principal compartment of the roof is represented Hercules giving the golden fleece to Philip the Good, duke of Burgundy; in a subordinate compartment, Pallas and the Gods are seen subduing the Titans; answering to this, the majesty of Spain appears ruling the terrestrial globe. The rest is filled up with allegorical figures, finely expressed. The antichamber contains the Conquest of Granada. From the great saloon we go to the garden, by a little oval cabinet, covered entirely with looking-glass, in the ceiling of which is represented the Birth of the Sun, with people of all nations worshipping the rising deity, whilst the priests are engaged in offering sacrifices. This likewise is by Jordano.

I saw one apartment, which is seldom shewn to foreigners, containing models of strong places; among these the two most striking are Cadiz and Gibraltar.

The gardens of this palace are extensive, and have a pleasing variety of wood and water. Had I been to fix upon a situation for the royal residence, I should have chosen this in preference to that in which the new palace stands but there may be,

perhaps, objections which do not present themselves to the transient observer.

The palace called *Casa del Campo* has few things worthy of attention. Here is an equestrian statue of Philip III. begun by Juan Bologna, and, after his death, finished by Tacca his disciple; it resembles that of Henry IV. at Paris. Here also is the original of the famous Temptation of St. Anthony, by Calot.

It is impossible to view the new palace without the most exquisite delight. It presents four fronts, each of four hundred and seventy feet in length, and one hundred feet in height up to the cornice, inclosing a quadrangle of one hundred and forty feet. These fronts are relieved by numerous pillars and pilastres, and over the cornice is a balustrade to hide the leaden roof. The height of the north front is considerably above the others, exhibiting five stories, besides the entresols and underground apartments.

With the balustrade, on pedestals, are placed a series of the kings of Spain, from Ataulfo to Fernando VI. The plan is somewhat singular. On the principal floor

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is a suit of apartments, large and elegant, which communicate all round the palace, receiving light from the fronts, and inclosing rooms for the domestics, which have light from a spacious gallery within. This gallery runs all round the quadrangle, over an open portico, or piazza, and is covered by a terrace. The foundation of this edifice was laid in the year 1737, three years after the old palace had been consumed by fire; and to prevent the like accident in future, the whole is upon arches.

The most striking feature in this palace is the audience chamber, *salón de los reynos*, which is a double cube of ninety feet, hung with crimson velvet, and which, with its sumptuous canopy, and painted roof, makes a most magnificent appearance.

The paintings of the ceilings are by Tiepolo, Giacinto, Bayeu, Velazquez, Maella, and Mengs. It is not possible to view the Apotheosis of Hercules, in the hall of conversation, and of Trajan, in the king's dining room, without feeling singular pleasure and delight. In the execution of these pieces, Mengs exerted all his powers, and seems to have found no difficulty

in executing what his imagination had conceived. Ease and elegance every where prevail. In these two delightful subjects we cannot readily determine which we should most admire, his designs, his lights and shades, his colouring, his invention, or his composition; for here he seems equally to deserve praise for all: he wants however, in my opinion, that expression in which his favourite Raphael excelled.

It would be unpardonable to pass over this superb collection of pictures without some kind of detail. I shall therefore begin with the king's apartments :

In his antichamber there is, by *Basan*, an Adam; a Noah; Orpheus; and six others.

Paul Veronese, Adonis sleeping.

Rubens, four of Hercules; one of Philip III.

Tintoret, Judith and Holophernes; St. Ursula martyred.

Titian, Sisyphus; Prometheus; three of Venus; and Adam and Eve.

Velasquez, Philip III. Philip IV. their two wives, and Olivares, all on horseback.

I doubt whether five such horses, so perfect,

perfect, and so full of animation, were ever seen together; the horse of Philip IV. rises from the canvas, and seems so much like real life, that, if properly placed, I am persuaded an acute eye might be easily deceived.

In the king's conversation room, into which he retires with the foreign ministers the moment he has dined, there are, by

Titian, Charles V. on horseback; Philip II; Europa; Adonis.

Vandyke, Don Fernando.

Velasquez, Donna Maria de Austria.

In the king's dressing room, by *Guido*, an Assumption.

Luca Jordano, Isaac; Flight into Egypt.

Mengs, a Nativity.

Murillo, The Annunciation; the Virgin and Joseph; a Sacred Family; Jesus and John, as infants.

Ribera, Elspagnoletto, the Virgin and Mary Magdalene; John the Baptist.

Velasquez, Argos; Vulcan at his forge, with the Cyclops and others.

Some by *Teniers* and by *Titian*.

In the king's private cabinet are more than

than twenty of *Teniers*, and one of *Worman*.

In the antichamber of his bed-room is a Holy Family, by *Jordano*, and one by *Mengs*.

In his bed chamber are eight by *Mengs*, among which are, the Agony in the Garden; the Taking down from the Cross; and, Christ appearing to Mary.

In the first apartment of the Infanta there are many by *Jordano* and *Lanfranc*; two children, by *Guido*; Virtue and Vice, by *Paul Veronese*; a portrait, by *Vandyke*; and two beautiful Cattle Pieces, by *Velasquez*.

In the second antichamber are, by *Carlo Maratti*, two women with flowers.

Jordano, Jacob and Esau; Bathsheba.

Lanfranc, two pieces.

Titian, St. Margaret.

In her dining room there are nineteen by *Jordano*.

In her great hall there are, by *Jordano*, four, taken from the history of Solomon.

Rubens, A Priest; a Dance; and one more.

Titian,

Titian, Charles V. and Philip II.

Velasquez, four pictures of distinguished merit.

In her bed room, Peter in Prison, by *Guer-cino*; St. Anthony of Padua adoring the Child Jesus, by *Carlo Marat*; and the Seizing of our Lord, by *Vandyke*.

In the apartments of the prince and princess, are seven pieces by *Jordano*; the Child Jesus disputing with the Doctors in the Temple, by *Paul Veronese*.

Of *Rubens*, the Rape of Ganymede; Marsias and Apollo; the Centaur in a robe of the wife of Perithous; Saturn; Apollo; Narcissus; the Holy Children.

In their cabinet there are, by *Albert Durer*, his own portrait, and the Death of the Virgin.

Bassan, The Adoration of the Kings; the Nativity; and, the Agony in the Garden.

Corregio, Christ clothed by his Mother; and Christ praying in the Garden.

Leonardo de Vinci, the Holy Children playing with a lamb; and one more.

Paul Veronese, Moses taken up by Pharaoh's daughter.

Poussin, a Landscape.

Raphael, a Holy Family; and a Virgin with her Son.

Rubens, two landscapes; four heads; and six small pictures.

Titian, Children playing round a statue of Venus; and a Bacchanal with a woman sleeping; both astonishingly fine. Rubens copied these, or rather, if the expression may be allowed, he translated them into Flemish. The thoughts remain, but the ease and the elegance are lost. Surely nothing ever equalled the originals; the eye is never tired of viewing them.

In the prince's dressing room are, by *Andrea Sacchi*, the Nativity of the Virgin. *Andrea Vacaro*, five pictures of St. Caya-tan.

Jordano, a Conception; and the Death of the Virgin.

Esplanoleto, or Joseph Ribera, sometimes called El Spagnoletto, a Magdalene; St. Benito; St. Geronimo; and St. Bartholomew.

Mengs, a Nativity.

Murillo, a Holy Family.

Rubens,

Rubens, a Virgin and Child.

Titian, Ecce Homo; and a Stabat Mater Dolorosa.

Vandyke, a Magdalene; and two of St. Rosalia.

Velazquez, a landscape with two hermits.

In their dining room there are, by *Brugbel*, some good pictures.

Esplanoleto, a Conjuror.

Coypel, Susanna accused by the Elders.

Paul Veronese, a Susanna.

Rubens, Achilles discovered by Ulysses.

Tintoret, Judith and Holofernes.

Titian, seven pictures.

Vandyke, a Woman.

Velasquez, the Marquis of Pescara.

Woverman, Landscapes.

In the apartment of the Infant don Gabriel, there are seven pieces by *Jordano*; three by *Esplanoleto*, and a Charles V. by *Titian*.

In the apartment of don Antonio there are three by *Jordano*.

In the apartment of the Infant don Louis were, by

Guido, Jesus bearing his Cross.

Paul Veronese, Eleazer and Rachael.

Rubens,

Rubens, St. George and the Dragon; the Centaurs; Progne giving to Tereus his son Itis to eat; Diana; Archimedes; Mercury; Hercules and the Hydra; Apollo and Pan; the Rape of Proserpine; the two copies from Titian, before mentioned, of the Bacchanals, and of the Children playing round the statue of Venus. Had the originals been lost, these would have been much admired.

Vandyke, the infant don Fernando; and some others.

What has been said may serve to give a faint idea of this inestimable collection; in viewing which, this observation naturally presents itself, that as far as relates to imitation of nature, the Spanish painters are not behind the first masters of Italy and Flanders; whereas, in point of light and shade, and what has been called aerial perspective, which is only the modification of these, *Velasquez* leaves all other painters far behind him.

Joining to the palace is a house called Casa de Reveque, in which are shut up the following pictures: by *Guido*, Hippomanes
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and Atalanta; by *Annibal Carracci*, a Venus with Adonis and Cupid; by *Paul Veronese*, the same subject, a smaller size; and by *Titian*, five pictures, in each of which is a naked Venus.

By *Rubens*, the Rape of the Sabines; Diana bathing; a Bacchanal; a Perseus and Andromeda; Juno, Pallas, and Venus, all full size.

Near to this is the royal armoury, which is well arranged; the armour is ancient, yet very bright, and well preserved; it is an epitome of Spanish history. The most conspicuously placed is the armour of Montezuma.

When I had in some measure satisfied my curiosity in viewing the pictures, I began to turn my attention towards the manufactures; but more especially to that of nitre, or salt-petre, which in this city has employed some thousands of the inhabitants in summer, and many hundreds in the winter.

In my way to this, on Saturday, May 27, passing through the gate of St. Barbara, I visited the tapestry manufactory, which resembles, and equals in beauty, the gobelins,

lins, from whence it originally came. I found a Frenchman at the head of it, who was civil and communicative. This fabric was brought into Spain, and established here under the direction of John de Van Dergoten, from Antwerp, in the year 1720. They now employ fourscore hands, and work only on the king's account, and for his palaces, making and repairing all the tapestry and carpets which are wanted at any of the *Sitios*, or royal residences.

Every one knows the method of working tapestry; that the chain is perpendicular, the harness over their heads, and the picture by which they work, behind them; that they work with bobbins, and press down the thread with a little ivory comb.

In making their carpets, they have three coarse-spun threads lightly twisted together, which they weave into the chain with their fingers, so as to tie, and then cut off the thread about a quarter of an inch in length. This they find to be much better than the ancient method of weaving on the cutting knife, and their work, they say, is considerably stronger.

From thence I proceeded to the salt-petre

petre works, where at every step I was confounded, and at a loss which to admire most, the wisdom of the Creator, and the secret paths in which he is constantly proceeding, or the folly of the minister, who established this manufacture at Madrid.

The person from whom I took my information was a Frenchman, who found employment here because of his skill, acquired in other works of a nature similar to these.

I observed a large inclosure, with a number of mounts of about twenty feet high, at regular distances from each other. These he told me had been collected from the rubbish of the city, and the scrapings of the highways. I examined them with a minute attention, and found nothing remarkable, but small fragments of gypsum in great abundance; they had remained all the winter piled up in the manner in which I found them. At this time men were employed in wheeling them away, and spreading abroad the earth to the thickness of about one foot, whilst others were turning what had been previously exposed to the influence of the sun and of the air.

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He told me, that the preceding summers these heaps had been washed, and that being thus exposed, they would yield the same quantity of salt again, and that, as far as he could judge, the produce would never fail; but that, after having been washed, no saltpetre could be obtained without a subsequent exposure. He thought Madrid, on all accounts, improper for such a manufacture; and said, that from his own observations, he was inclined to think they could not make saltpetre for eight reales, that is, nearly twenty pence a pound.

My curiosity was excited to the highest degree by this account, which seemed to offer violence to the most established principles of chemistry; I determined therefore to lose no opportunity of paying attention to this business, and with that view, procured an introduction to the gentlemen who had the direction and control of it. With them I examined a much more extensive work at the gate *Atocha*, near the general hospital. They informed me, that the number of men employed was commonly about fifteen hundred, but for some short intervals, near four thousand; this latter number agrees well enough with the
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abbé Cavanilles, who states them at four thousand. According to their account, they have had this manufacture only a few years, and have now collected earth sufficient to last for ever. Some of this earth they can lixivate once a year, some they have washed twenty times in the last seven years, and some they have subjected to this operation fifteen times in one year, judging always by their eye, when they may wash it to advantage, and by their taste if it has yielded a lixivium of a proper strength. When it is too weak, they pass it over fresh earth till it is strong enough for boiling. Most of the earth they use is common earth, and they are of opinion that all the earth in the vicinity of Madrid contains some nitre. When the earth has been a proper time exposed, they put it into large earthen pans, ranged in a row, of the same form with those used by sugar-bakers to refine their sugars, being a cone inverted, with the apex truncated; at the bottom they put a bit of esparto matting covered with ashes, to prevent the earth from falling through; on this they keep pouring water as fast as it filters, till it will yield no more lixivium. As it filters it falls

falls into a drain, which conducts it to a cistern; from hence it is pumped up into the furnaces, which are absurdly deep, and by a fierce fire is evaporated sufficiently for the salt to crystallize. The salt thus obtained is a mixture of nitre and sea salt. To separate these, they use the common process. It is well known that muria, or sea salt, is soluble in three times its weight of water, either hot or cold; but nitre requires only one-sixth of its weight, if the water is boiling, whereas, if it is cold, the water must be six times the weight of nitre, to dissolve it perfectly. Hence it is evident, that on cooling, the nitre will be the first to crystallize; this however requires repeated operations before the nitre is thoroughly refined, and fit for market. The director and comptroller both assured me, that the saltpetre did not stand the king in more than two hundred reales a quintal, and that he sold it for five hundred, getting a clear profit of three hundred reales by every quintal which he made. They ought to know; but I suspect that in their calculation there is some mistake.

Not satisfied with this account of gains by a royal manufacture, and in such a situation,

ation, I went once more to examine some inferior officers, both in the upper and the lower works, at the two gates, S. Barbara and Atocha. I found some in each, who were sufficiently communicative; and this was the result of my enquiries: at the upper works, since the war, they have employed one hundred men in winter, and more than three hundred in the summer; they have four furnaces, and have made, upon the average, about four thousand arrobas of refined saltpetre in the season. At the lower works, they employ commonly in the winter three hundred men, and in the summer above one thousand, but occasionally they have had twice these numbers. With this strength, and with twenty-five furnaces commonly at work, they have refined thirty thousand arrobas of saltpetre; and they guess the sea salt at ten thousand arrobas. To heat their furnaces they use vine branches, for which they give one real per arroba, or two pence halfpenny for twenty-three pounds and one quarter.

These are the facts: let us stop one moment to examine them; at present, not as philosophers and chemists, but as mer-

chants and politicians. If we allow the quintal of four arrobas to be equal to ninety-three pounds English, which is what the merchants reckon it, and the real to be worth two pence halfpenny, we must conclude that the king of Spain makes his salt-petre for five pence farthing; and it is clear that he sells it for thirteen pence farthing per pound: but if, at the upper works, we allow one hundred men in winter, and three hundred in the summer, or two hundred on the average, at fifteen pounds per annum each, and say that they refine one thousand quintals of salt-petre, we shall find that the labour alone comes to seven pence three farthings a pound, without allowing any thing for wear and tear of utensils, for salaries, and above all for fuel. When a man considers, that not only in the first, but in every subsequent operation for refining the nitre, six pounds of water must be evaporated for one pound of the salt produced, and that twenty-three pounds and one quarter of such weak fuel as vine branches stands in two pence halfpenny, although without the assistance of Mr. Watt he may not be able by calculation precisely to point out
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the quantity of fuel, supposing the evaporation to be conducted upon the most approved principles, yet every man may see that the expence must be enormous. Taking all these things into consideration, I am inclined to think, that the king of Spain does not make his nitre for twenty pence per pound. As for the sea salt, I have not taken that into the account, because in Spain it has little value, except that which it has acquired by carriage; and indeed with us in England, as in France, the principal part of its price arises from the duty which is imposed upon it. The king of Spain sells his nitre at thirteen pence halfpenny per pound; and if it costs him twenty pence, he gets nothing by the bargain. But supposing he might make a profit by the sale; yet, if he sells it to himself, I know not where he is to look for gain; and if he compels his subjects to be the purchasers, he is guilty of oppression; he lays snares to catch the merchants, and he gives encouragement to smugglers.

The East India Company, when it is refined, sell salt-petre in the English market for £. 2. 4s. 6d. the cwt. which, deducting

seven shillings and three pence, the drawback on exportation, is a small fraction under four pence a pound, and the company would no doubt be happy to contract with Spain for less. In Bengal, as I am informed by one who was thirty years in the trade between China and that country, saltpetre, before the East India Company undertook to make it on their own account, sold for four rupees the bag of 160 pounds, which, at 2*s.* 6*d.* the rupee, would be exactly three farthings a pound; but in fact the rupee is intrinsically worth only one shilling and ten pence, and by the company is reckoned two shillings and three pence.

The foundation of this difference in the price of the production between Bengal and Madrid must be obvious to every one who considers that the evaporation, which is effected in the latter by the force of fire, may be carried on in the former without expence, by the sun and by the air.

Of all places, Madrid is the most improper for such an extensive manufacture; where they have long winters; where provisions, labour, fuel, are all at a high price; where the court resides; and where they
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have no navigation. If this manufacture were established in the south of Spain, near to a navigable river, none of these objections would have place; the sun and air would assist the evaporation, or completely finish it, as we see daily in their salt works on the borders of the Mediterranean; the little fuel which might be needful would find its way to them; and the nitre would be easily transported for the supply of distant markets: but even there it should not be administered on the sovereign's account; because, with every advantage of situation, the monarch must be a loser, where the private adventurer would contrive to gain.

I have no doubt that motives of benevolence may have contributed to keep this voracious monster at Madrid, and the apprehension, that were it not cherished and supported, a multitude which is now fed by their attendance upon it would be reduced to famine. Of all employments for the poor, that which is most uncertain is the least desirable; and little is that to be encouraged, which in summer decoys them from the harvest, and from the works of husbandry.

dry, and, when the winter comes, turns them adrift, to remain inactive till the return of spring. These objections remain in force against the manufacture of salt-petre at Madrid, which feeds four hundred only in the winter, and when they should listen to the calls of agriculture, employs from thirteen hundred to four thousand. If these are not wanted for the labours of the field, and can find no constant work in profitable fabrics, it is plain that they have needlessly been drawn into existence, and that the population should be suffered to sink gradually till it has again found its proper level.

I have dwelt upon this subject, and treated it thus copiously, and pushed the conclusion as far as it will go, because the principle, which is thereby established, is of great importance to mankind, and yet seems to have been little understood.

I tried to obtain admission to the china manufacture, which is likewise administered on the king's account, but his majesty's injunctions are so severe, that I could neither get introduced to see it, nor meet with any one who had ever been able to procure

that favour for himself. I was the less mortified upon this occasion, because from the specimens which I have seen, both in the palace at Madrid and in the provinces, it resembles the manufacture of Séve, which I had formerly visited in a tour through France.

I enquired also for the manufacture of gold and silver stuffs, of which Uztariz makes mention; but I could not find the least vestige of it. He tells us, that this establishment was made in the year 1712, with peculiar privileges, and with the best encouragement. Each loom was allowed one quintal of silk, with wine, oil, and soap, of each ten arrobas ($232\frac{1}{2}$ pounds) per annum, free of all duties, and the stuffs in their first sale were to enjoy the same exemption.

When I began to think of going to the court, I was for a time diverted from my purpose by the kindness of my friend Don Casimir Ortega, who introduced me to Count Campomanes, governor of the council of Castille. We called first at his house, but not finding him at home, we went to a society, founded

A. D. 1738, called *Academia de la Historia*; it meets at the *Panaderia*, or *Casa Real*, in the Plaza Mayor, and he is the president.

The Plaza Mayor, in the year 1612, when it was finished, must have excited admiration; it is four hundred and thirty-four feet by three hundred and thirty-four, and much too high for these dimensions.

In the *Casa Real* are some good apartments, looking to the sun, now given up to the secretary of this society. They have a good collection of books, manuscripts, and medals. They are employed upon the history of Spain, and have bestowed uncommon labour and attention in ascertaining both its geography and chronology. It is here, that on all solemn occasions the royal family assembles to see the bull feasts.

When we arrived, the society was meeting. Among those to whom I was introduced was a man advanced in years, appearing, at first view, of a forbidding aspect and ungracious in his manner; he said nothing to me, but turned himself round, and took up a book. Soon after this, I saw him take the chair, and found that this
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was Campomanes. How I ever got resolution to visit him I cannot conceive ; but I found him always easy of access, condescending, gracious, kind, friendly, and obliging to the last degree. It is possible that his goodness to me may have made me partial in my judgment of him ; but, in my opinion, few kingdoms can boast his equal for understanding, knowledge, and benevolence. He appears to me one of the most superior characters that have adorned his country, and one of the best patriots that ever gave instruction to a rising nation.

It must be confessed, that my first introduction to him was awkwardly conducted, and for want of information, my subsequent visits, I can readily suppose, might appear ill timed to him. He had the goodness to make me promise that I would come to him the next day, but did not name the hour. In the afternoon I went, but the porter told me he was not at home. I said that I came by appointment. He then told me, that his excellence was asleep, this being his time for taking the *siesta*, but that I might go up and wait. I went up into a large hall, where I found many ill dressed people waiting,

waiting, but no domestic. Here I continued for a time; but, upon observing some genteel visitors going through this hall, I followed them into the next apartment, where I found a page writing at a table. Here I stopped, and took a chair. After a time I enquired if his excellence was awake. The page left me, and in about ten minutes came back, and conducted me into the council chamber, where I found him in his bed-gown and white night-cap walking with those gentlemen who had passed through to him without asking any question of the page. The count received me with the greatest goodness, and led me into his closet, where I had the happiness of enjoying his conversation more than two hours. He invited me to come to him whenever it should be agreeable to me, and desired that, without reserve, I would apply to him whenever I wanted either information or protection. Fearing I might break in upon his time, which I knew must be exceedingly valuable, because no minister in any kingdom has so much business passing through his hands, I returned no more till I was about

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to make an excursion to the north. I then called about two hours later than before, and, without asking any question, I walked up, and went directly to the council chamber. Here I found two gentlemen waiting, who had been announced. After a few minutes his door opened, and he came in, when, for the first time, I discovered that he was near sighted in the extreme. When he had spoken to them, he enquired if any body beside was in the room. Upon this I presented myself, and was perfectly satisfied with my reception. As I had seen his chariot waiting at the door, I soon made my bow, and left him. After I became better acquainted with the manners in Spain, I had, on my return from my northern expedition, much more comfortable enjoyment of his society, and, instead of breaking in upon his time, either when he had business to dispatch, or when he was at his siesta, or when he wished to take the air, I used to assemble with his friends after the business of the day was over, when I never failed to meet with the most cordial reception. If I happened to go to him too early, he had the goodness to forgive

forgive me, and would often dictate to his page, and at the same time keep up the conversation with me.

Before I left him, he made me tell him what I had seen, and finding that I had not visited his favourite establishment, he recommended me to see it. This was the academy of the ennobled arts. The next morning I presented myself in his name to Don A. Ponz, the president, a man of taste and judgment in the arts, who conducted me through all the numerous and magnificent apartments which have been given up to this useful institution. In the evening, I returned to see the pupils at their work, when I had the pleasure to find 280 boys engaged in drawing, twenty employed in architecture, with thirty-six modelling in clay, some from casts, and others from a living subject. Every month prizes are distributed to stimulate their diligence. This academy, like that which I have described at Barcelona, is open to the whole world, and every thing is provided for the pupils at the king's expence.

The cabinet of natural history is accessible to all; there is no need to wait for tickets,

tickets, but at the appointed hours any person, who is decent in his appearance, is admitted to walk round the rooms, and to examine what he pleases, as long as the doors are open; if he is peculiarly devoted to one branch of natural history, he is not hurried away from that with the gaping multitude, and compelled to spend the allotted portion of his time in apartments which contain nothing to his purpose. This circumstance gave me peculiar pleasure, because my chief attention has ever been to minerals.

The collection of the king of Spain is truly magnificent, but far from being well-chosen, or well arranged. For intrinsic value in silver, gold, and precious stones, perhaps no cabinet ever equalled this; but for science, I had rather be master of the more humble collections of Mr. Charles Greville, or of M. Besson.

Among the large masses of native gold, I could not discern one crystal; and as for those of silver, they appear to have been valued chiefly for their weight.

The large crystals of sulphur from Conil mine, near Cadiz, are well preserved, but
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like most other substances of the mineral kingdom in this cabinet, they are in too great abundance; every shelf is loaded with duplicates upon duplicates without end.

The specimen which most attracted my attention was a large rock, containing forty emeralds, in the form of hexagonal prisms, some near an inch diameter, and one inch and an half in length, and many of the finest water, without the appearance of a flaw. I wished for the privilege of taking away those only which had been absurdly cemented on this rock; my cabinet would have been much enriched by the accession of these beautiful crystals, and the rock itself would have recovered its more graceful, because more natural simplicity.

The collection of tins was exceedingly defective, and among these I observed two palpable misnomers; these were two dodacaedral garnets placed among the tin crystals, each with the tin mark upon it, one in the hand writing of M. Davila, the other of the merchant from whom he purchased it.

The extraneous fossils are exceedingly confused; requiring to be purged, and well arranged.

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The animals are beautiful, and in high preservation,

The foundation of this collection was laid by M. Davila; but I apprehend that after he had published his much admired catalogue, the best of the specimens were picked and culled, and that the refuse only were carried to the king of Spain, who made the purchase, and appointed him first director of his cabinet.

The science of natural history is almost new in Europe. Sir Hans Sloane led the way in England, Buffon followed, and Davila brought up the rear. It is but of late years that the sovereigns of Europe have taken this science under their protection. England began, and Spain has followed the example.

Should Izquierdo, the present director of the Spanish cabinet, bend his mind to natural history, I may venture to say, that all the other cabinets in Europe will soon be left far behind; but I fear, that his great talents will place him in some more exalted station; his strong understanding, quickness, and penetration, his universal knowledge, and his unwearied application,

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mark him out for the finance; and there, I apprehend, his ambition leads him. I met with him in Paris, where the most flattering offers had been made to him; but he chose rather to return to Spain, his native country.

In M. Clavijo, the vice director of the cabinet, I found a sensible man, and a most agreeable companion, well informed on every subject to which he had turned his thoughts, hospitable, generous, polite, and always ready to oblige. Bred in the civil departments of the state, his services on the death of Davila, and the promotion of Izquierdo, were rewarded by this appointment to the cabinet. Upon hearing me praise the emeralds I had seen, he advised me to procure admission to a private cabinet, belonging to the marquis of Sonora, minister of the Indies. I followed his advice, and got my friend don Casimir Ortega to conduct me to his house. Here I was perfectly astonished at the beauty of his emeralds, superior to any I had seen for lustre and for size. He had likewise good specimens of gold and silver, with artificial birds in filigree, from the East Indies, which

which must give pleasure to all who can admire the works of art. This collection is valuable, but the marquis most evidently had no taste for science, and was solicitous, not to acquire knowledge, but to increase his treasure.

In the evening, I directed my course towards the Prado, which, at this season of the year, is much frequented: my objects of pursuit had been so many and so various, that I could spare but little time for this refreshing grove; but, now, having finished all my work, I walked as long as I could see.

The coaches were numerous, and the walks were crowded, all was in motion, when suddenly, about eight in the evening; on the tolling of a bell, I was much surprised to see all motion cease, every coach stood still, every hat was off, and every lip seemed to utter prayer. This I afterwards found to be the custom all over Spain. If the affections of the heart correspond with the external sign of piety in Spain, and if the moral conduct answers to the affections of the heart, this people must be the most heavenly-minded, and the most virtuous

people upon earth. But all is not gold that glitters; and I had soon an opportunity of forming a conjecture, that all who thus moved the lip were not to be reckoned among the friends of piety and virtue. When the prayer was over, the coaches began to move slowly on once more; but soon after this they went briskly off, and, the multitude dispersing, left a number of young women, attended by young men, who from that time seemed to be more at ease, yet, notwithstanding, kept within the bounds of decency.

I have observed all over Spain, that the leading **principle is**, never to give offence. People may be as vicious as they please; it may be notorious that they are so; but their manners must be correct. This regard to decency certainly deserves the highest commendation.

At Madrid, the hotels are good. They have no table d' hôte; but every one dines in his own apartment, where he is served with two courses, each of four or five dishes, with a desert, and one such course for supper, with plenty of good wine, for which he pays seven livres and an half a day,

day, including lodging ; but if he eats no supper, then his dinner and his two rooms will cost him only five livres, or four and two pence English.

Having, for the present, satisfied my curiosity at Madrid, *June 2*, I went with M. Izquierdo post to Aranjuez, seven leagues, which we performed in about three hours. In the way from Barcelona, seven leagues with seven mules had been a long day's journey. In comparison with that slow motion, we seemed to fly.

All the way we saw only gypsum rock, wherever the rock was to be seen. The road is perfectly well made, wide, straight, and planted on each side with elms. The country almost a dead flat. In this short space we left the Manzanares, crossed the Jarama, touched the Tajuna, and came to the Tajo, which we call the Tagus.

After dinner I presented myself to our minister, Mr. Liston, and the day following I went with him to deliver my letters to count Florida Blanca, the prime minister.

His excellency received me graciously, and told me, that whilst I remained in that

kingdom, I had only to inform him what I wished, and it should be done for me. He is a little man, and, if I may judge by his eyes, exceedingly hypochondriacal; but he has a look of benevolence, and, if his countenance does not deceive me, he has more than a common share of understanding. His manners are polished, and his address is pleasing.

Sunday, *June 4*, I went to court to see the king and all the royal family at dinner; then dined at Mr. Liston's, where I met Sir Alexander Monro and general O' Neil; and at five in the evening I went to Añover, three leagues from Aranjuez, to pass a few days with my friend Don Casimir Ortega.

Whoever goes to Aranjuez should take care to fill his purse, and he may be certain that he will soon find it emptied. For a single mule in a volante I paid fourscore reales, which is sixteen shillings and eight pence, to go these three leagues. For one miserable bed-room you must give eight shillings and four pence a day; and if you do not quit early in the morning, you are charged four shillings and

two

two pence for the half day. Yet with all these heavy charges, the inn-keepers are not unreasonable, because they have but a short harvest, in which they are to make up their rent; besides which, the expence being so exceedingly oppressive, no one ever comes here but by necessity, and therefore they who are obliged to come must bear the greater burden.

Anover, three leagues from Aranjuez, and four from Toledo, is built on the summit of a gypsum rock, commanding an extensive plain, which is watered by the Tagus. It has four hundred houses, and contains two thousand souls; of which, fourteen hundred go to confession, and receive the eucharist; the remaining six hundred are under ten years of age.

The extensive plain through which the Tagus flows, resembling the vale of Pewsey in Wiltshire, is of vast extent, running east and west; it is bounded to the north by a ridge of hills, on which this village stands, and beyond the river, to the south, by distant mountains, yet of gypsum, and not like the Wiltshire hills, of chalk. The soil of this vale, being sand and clay to the

depth of eight or ten feet to the level of the river, is rich, and its fertility is abundantly increased by the overflowing of the Tagus, which in winter leaves greater wealth behind than ever was collected from its golden sands. In summer, water is supplied by norias, at little expence beside that of labour. They had once a canal, made by Philip V. seven leagues in length, which brought to them the waters of Jarama; but, about twenty years ago, the head proved faulty, and it has never been repaired. The loss by this misfortune and neglect is almost inestimable; some idea may however be formed by considering, that Anover alone has ninety norias, the expence of which would have been saved by the canal.

Behind the village, on the hills, there is a fruitful plain, whose soil is dissolved gypsum, sand, and clay. The plain is cut by innumerable ravins to a considerable depth, which discover the gypsum rock in horizontal strata, with fine blue clay, very hard, and remarkable for smoothness, interposed between the beds of gypsum; this gypsum is mostly crystallized, and is either
solid,

solid, striated, stellated, lamellous, or in stalactites. In the ravins contiguous to the village, the poor have excavated little habitations, with each a chimney, and a narrow entrance by way of door; these are warm in winter, cool in summer, always dry.

The parish of Anover is a league and an half in length, and three quarters in breadth. It has one hundred and fifty proprietors of land, the representatives of those by whom the country was recovered from the Moors, who are all freeholders, subject to no manerial rights, paying only two-tenths, one to the king, and the other to the church, each taken up in kind. As their estates are not entailed, industry is much encouraged. It is however much to be lamented, that the lands of each proprietor are scattered in small parcels in the common field, which, after harvest, is fed in common by all the parish flocks, so that they can not plough, nor crop, nor feed them to advantage.

Their course of husbandry in the valley is, two years, barley; one year, wheat; and the fourth year, melons. These are natu-

ral to the soil, as appears by the *cucumis elaterium*, a native of this country. The crops are watered, and the produce of wheat is fifty for one; of barley, from sixty to a hundred; which is nearly five times the average produce with us in proportion to the seed. Don Casimir has for some years past been cultivating fenna to great advantage: it is for the English market, and is much admired.

From the hills, and the extensive plain beyond them, they obtain wine, olives, oil, and corn, chiefly wheat; all exceeding fine.

Their ploughs shew great scarcity both of timber and of iron; the beam is about three feet long, curved, and tapered at one end, to receive an additional beam of about five feet fastened to it by two iron collars; the other end of the three foot beam touches the ground, and has a mortise to receive the share, the handle, and a wedge. From this description it is evident that the beam itself supplies the place of sheets; the share has no fin, and instead of a mould-board, there are two wooden pins fastened near the heel of the share,

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As in this plough the share, from the point to its insertion in the beam, is two feet six inches long, it is strengthened by a retch. They have no other implements of tillage, being perfect strangers to the use of harrows. It must be evident to every one who has the least knowledge of this subject, that no plough can be worse adapted to the soil; were they to procure models from Barcelona, they would soon be convinced of this.

For cheese they never use the rennet, but in its place they substitute the down of the *cynara cardunculus*, a species of the wild artichoke, with which they make a strong infusion over night, and the next morning, when the milk is warm from the cow, they put nearly half a pint of the infusion to thirty-two azumbres, or about fourteen gallons English measure.

Within these ten years they have established a manufactory of *saltpetre*, highly interesting to the chemist. To collect the earth most suited for their purpose, they go out early in the morning, and observe where the ground is wet, and changed to a dark colour, having been previously distinguished
for

for its whiteness; this they bring home and wash, after the same manner as at Madrid. Saltpetre being composed of nitrous acid with vegetable alkali, it has been imagined, that the ashes used in making nitre contributed the latter; but here they employ only the ashes of the tamarisk, which contain vitriolic salts; and, as the vitriolic acid has a stronger affinity to the vegetable alkali than nitrous acid, it must be evident, that both the acid and the alkali of the nitre have some other origin, receiving nothing from the ashes.

After they have extracted all the nitre, they expose the earth to the influence of the sun, and then find the same proportion of the salt, as if it had never been lixiviated before.

Near to this village, towards the bottom of a ravin, are two springs containing epsom salt, which, as the sun evaporates the water, forms in beautifully white, spongy, and mamellous flakes. The same salt is seen efflorescing from the gypseous earth and clay above the springs. With the nitre is found sea salt. Thus, in this elevated part of Spain, the vitriolic, the nitrous, and
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the muriatic acids, with magnesia, the vegetable, and the fossil alkalis, all meet together in a manner never yet explored. When I come to Granada, I shall resume this subject, and collect such facts as appear to be connected with it.

The plants to be found here growing on the bare gypsum rock are, the *Cistus hale-mifolius*; *Cistus helianthemum*; *Lepidium subulatum*; *Artimisia herba alba*; *Thymus zygis*, used by the natives to prepare the olives; *Teucrium capitatum*; *Statice retusa*; *Bupthalmum aquaticum*, with which they make brooms; *Marubium vulgare*; *Thapsia villosa*; *Peganum harmela*; *Carduus solstitialis*; *Francia levis*; *Sedum hispanicum*; *Francia pulvurulenta*, thriving best on the saltpetre earth.

In the valley I found the following plants: *Anchusa officinalis*; *Althæa officin.*; *Andrealia integrifolia*; *Arundo phrag.*; *Adonis æstivalis*; *Aparine vulgare*; *Carduus acantoides*; *Carduus marianus*; *Chæmæmelumcotulâ aureâ*; *Centauria salmantica*, used for making brooms; *Crepis*; *Cucubalus behen*; *Cucumis elaterium*; *Cynara Cardunculus*, used for turning milk;

milk; *Daucus visnaga*; *Eringium commune*; *Echium vulg.*; *Echinops strigosus*, which produces the Amadoux, with which they obtain light, as we do with tinder; *Euphorbia ferrata*; *Lepidium latifolium*; *Lycium Europæum*; *Lychnis*; *Malva rotundifol.*; *Ornithopus*; *Poliganum aviculare*; *Peganum harmela*, the ashes of which they use in Arragon for making glass; *Rubia tinctorum*; *Salix alba*; *Salsola tragus*; *Salsola fativa*; *Salsola Cali*; *Salsola fruticosa*; *Tamariscus gallica*, which, when burnt, produces vitriolated tartar and Glauber salt.

The *Salsolas* are worthy to be noticed; because they are commonly found on the sea shores, within the influence of salt water. Their production in this valley will create no difficulty, if we call to mind the nature of the hills, and the quantity of salt which they contain.

Beef and veal sell for ten quarts the pound of sixteen ounces; mutton, twelve; bread, four and an half; eight quarts and an half make a real vellon, or nearly ten farthings English. Labour in winter is four reales a day, in harvest, five. If hired by the

the year, they have forty-five reales a month, or about six pounds two shillings per annum, and their board.

Hitherto I had associated only with those who were perfect masters of the French language; but now the time was come when I must begin to find my way without the assistance of interpreters. My first attempt, however, was attended with some difficulty. My friend, don Casimir, made my bargain for a ~~bo~~^{co}rico, and a guide to convey me to Toledo.

Wednesday, *June 7*, at break of day, I took leave of my hospitable friend, and put myself under the protection of my guide; with whom, not being able to converse, I had the more leisure to make observations by the way.

His attention seemed to be rivetted; but for a length of time I could not imagine what kind of object he was seeking, till at last seeing a cloud of dust ascending from the vale beneath us, and observing that his eyes became more bright, and that he moved more lightly over the turf, I began to dive into his intentions, and to consider how I was to avoid the cloud, which to
him,

him, as it appeared, had the most powerful attractives. We descended slowly down the hill, and when we were got into the valley, saw before us a drove of carriers, with their asses loaded, carrying gypsum to Toledo. These were the friends and village companions of my guide, for whom he had been looking out, impatient of that silence which my ignorance of his language had imposed on him. Smothered with dust, I began to recollect all the Spanish I had ever heard, but could find no expressions by which I could make him comprehend that I was not pleased with our new companions; till at last I halted, let them get a head, beckoned my guide, and said, with an angry tone of voice, pointing to his friends, "*No son mis amigos.*" This, repeated with energy, had a due effect, and from thenceforward I had a most comfortable ride.

Having descended into the valley, we saw no more gypsum, except two insulated hills to the right, intirely composed of this substance, which in Spain seems almost every where to supply the place of chalk. Instead of gypsum we found clay, pure, and without visible admixture, appearing from
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the summits of some swelling hills to their foundations; but as we advanced nearer to Toledo, we met with other hills, which even to the water's edge, on the banks of the Tagus, discovered only quartz, with the clay evidently the produce of decomposed granite, without the smallest vestige of the mica or of the feld spat in mass.

The situation of Toledo is remarkable. The Tagus, passing between two granite mountains, and almost surrounding one of these, forms a peninsula, on which the city stands, appearing at a distance like a cone.

Having passed the gate, we ascended to the apex, and soon fell down upon a posada, built by the archbishop at his own expence, and fitted up in the most commodious manner; there are no less than forty-seven bed-rooms, spacious, neat, and furnished with good beds. The price of every thing is fixed, and is very moderate.

From a dialogue which my young friend and travelling companion, the cadet don Nicolas de Llano Ponte, had composed for me, supposed to be between a traveller and his host, I contrived to let my present host

know that I should dine there, and then took a walk to form a general idea of the city.

When I returned, I found all hurry and confusion in the inn: a *gran senor* had arrived soon after my departure, and occupied the whole attention of the posadero, leaving me without hope of procuring any thing that day to eat or drink. This *gran senor* was M. Cabarrus, the projector of the Spanish bank, who, with his friend Izquierdo, were come to survey the river, for the purpose of a canal between this city and Madrid.

Nothing could be more opportune for me. I immediately joined company with them, and when they left Toledo, they transferred me to their friends; from whom I obtained all that a traveller can want, information and protection.

After dinner we began with visiting the Alcazar, that residence of antient kings, now the magnificent abode of poverty and wretchedness.

The north front is by Alonso de Coyerubias and Luis de Vergara, who were employed by Charles V. The south front is the work of Juan de Herrera. The quadrangle

drangle is one hundred and sixty feet by one hundred and thirty, and, with the great stair case, the gallery, and the colonnade, has an air of elegant simplicity.

When the court retired from Toledo, this palace was suffered to decay, till some lovers of the arts, mourning over the ruins of the once stately pile, had made representations to the king, and urged him to repair it. In consequence of these representations, the archbishop himself undertook the business, and having restored the Alcazar to its pristine grandeur, converted it into an hospicio or general workhouse for the poor. All the magnificent apartments are now occupied with spinning-wheels and looms, and instead of princes, they are filled with beggars. In these they work, and in the under-ground story, which had been the stables, they have their dormitory.

The good archbishop here feeds seven hundred persons, who are employed in the silk manufactory; but unfortunately, with the best intentions, he has completed the ruin of the city; for, by his weight of capital, he has raised the price both of labour

and of the raw material, whilst, by carrying a greater quantity of goods to the common market, he has sunk the price of the commodity so much, that the manufacturers, who employed from forty to sixty workmen, now employ only two or three, and many who were in affluence are now reduced to penury.

These people are so far from earning their own maintenance, that over and above the produce of their labour they require forty thousand ducats a year for their support. If we reckon the ducat at 2*s.* 3½*d.* we shall find the sum amount to six pounds ten shillings and a fraction for each pauper, which alone, without the assistance of their work, should suffice for two of them. Of these forty thousand ducats, the archbishop gives, in the first instance, twenty thousand, and the church supplies the rest; but having conversed with him upon this subject, I am much inclined to think that he gives a great deal more. He certainly supplies the deficit; and with his vast revenue he is always poor.

From the universal experience of mankind I may venture to assert, that if the
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most able silk manufacturer in Europe, who in the way of his profession has acquired wealth, were to feed, to clothe, and to employ seven hundred people upon the same terms, either with these in the Alcazar, or with those who belong to similar establishments in England, France, or Spain, he would soon be reduced to poverty. For health, for comfort, for profit, for population, let every family occupy a separate cottage, and learn to live on the produce of its industry. For want of a right understanding on this subject, benevolence in England, France, and Spain must sigh, and say, "When I would do good, evil is present with me." Such establishments increase the evils they mean to remedy, and aggravate the distresses they were intended to relieve.

From the Alcazar we went to visit the royal manufactory of arms, with which I was much pleased. The steel is excellent, and so perfectly tempered, that in thrusting at a target the swords will bend like whalebone, and yet cut through a helmet without turning their edge. This once famous

manufacture had been neglected, and in a manner lost, but it is now reviving.

The next morning I devoted to the cathedral, where I spent some hours agreeably. The building itself, the carving, the pictures, and the treasures it contains, all attract and rivet the attention. This magnificent church is four hundred and four feet long, and two hundred and three feet wide; it has five ailes, and the highest of these is one hundred and sixty feet. The choir is covered with carvings representing the conquest of Granada, executed in a most superior stile, by the two famous artists, Alonso Berruguete, a disciple of Michael Angelo, and Felipe de Borgona. The eye is never weary of examining these monuments of their consummate skill. Among the pictures are the works of the best masters, of Rubens, Titian, Dominico Greco, Vandyke, Guido, Carlo Maratti, Eugenio Caxes, Vincente Carducho, and Bassano. In the library they have near seven hundred manuscripts.

The treasures of this cathedral struck me with astonishment. *La Custodia*, an elegant

elegant silver model of the cathedral, weighs twenty-two thousand ounces, and took fifty-five ounces of pure gold for gilding. It contains a multitude of pillars, and two hundred little silver images of exquisite workmanship. In the centre of this edifice is placed a shrine of massive gold, weighing fifty pounds; another, which occasionally supplies the place of this, contains a statue of the infant Jesus made of pure gold, and adorned with eight hundred precious stones. In four separate closets are four large silver images standing on globes of silver, each two feet diameter, representing Europe, Asia, Africa, and America, with their several emblems, given by Anne of Newbrough. The grand silver throne, on which is placed the Virgin, wearing a crown, and adorned with a profusion of the most costly jems, weighs fifty arrobas, which, at twenty-five pound the arroba, is equal to one thousand two hundred and fifty pounds. In the chapel of the Virgin is an altar covered with gold and silver.

It is evident that this profusion of wealth has arisen from the pious donations of the Spanish princes, out of the immense treasures

obtained from their gold and silver mines, on the first discovery of America. The value of these donations may be ascertained with ease; but no pen can estimate, no figures calculate, no imagination can conceive, what would have been the value, what the produce of this wealth, if, instead of being thus buried, and, as far as relates to any useful purpose, lost, it had been employed in making easy communications through the kingdom, by canals and roads, or in the improvement of the soil, by draining, by planting, and by watering, or in the establishment, by means of premiums and by loans, of useful manufactures, suited to the genius of the people and to the nature of the country. If that overflowing wealth had been diverted into profitable channels, what might Spain have been! We may venture to say that, if the gold and silver of America, instead of being buried in the churches, or, which is worse, instead of pampering the pride, the prodigality, and the unprofitable luxury of the great, or, which is worst of all, instead of being idly squandered in useless and almost endless wars, if all this gold and
silver

silver had been devoted to Ceres, Spain would have been her most favoured residence, and the whole peninsula would be one continued garden.

The revenue of this cathedral is, perhaps, not to be equalled by any church in Europe.

The archbishop has nine millions of reales a year, which, at two pence halfpenny per real, would be equal to ninety-three thousand seven hundred fifty pounds sterling; but we may with more accuracy say ninety thousand; a revenue this fit for a sovereign prince. Besides the archbishop, there are forty canons, fifty prebendaries, and fifty chaplains. Of the canons, fourteen are dignitaries. The whole body of ecclesiastics belonging to this cathedral is six hundred, all well provided for. They were formerly regulars of St. Augustin, but they are now secularised.

I had the curiosity to hear mass in one of the chapels, where they use only the Mozarabic Missal, which was composed by St. Isidore for the Gothic church after their conversion from arianism to the catholic faith, &c. This maintained its empire till the expulsion of the Moors, when the court

introduced the Roman Missal, but at the same time, influenced by the lenity and good sense of Ximenes, indulged the nobles and the clergy of Toledo with their own Missal; but by degrees this was neglected, and almost forgotten, insomuch that when I was there no one was present but myself and the officiating priest.

No religious establishment need be afraid of toleration, unless it be absurd in the extreme; cease to persecute, and all sects will in due time dwindle and decay; they have the seeds of mortality in themselves, and nothing but persecution can prevent their dissolution. When government has given its sanction to one religion, and made provision for its priests; when with cool deliberation it has made choice of that which appears to be the best, and has affixed its stamp, it has done its duty, and may safely leave the rest to the good pleasure of its citizens, or, if it interferes at all, it should be to encourage competition; and by no means to establish a monopoly.

In visiting the town house, I was struck with a beautiful inscription on the staircase, and took the pains to copy it. The affinity between the Spanish language and
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the Italian is so visible that most people who have any knowledge of the one may, by the assistance of the French and Latin, understand the other. I shall, therefore, venture to give the inscription without attempting a translation. It is addressed to the magistrates of Toledo, and thus we read it :

Nobles discretos varones
 Que gobernais à Toledo
 En aquestos escalones
 Defechad las aficiones
 Codicias, amor, y Miedo.
 Por los comunes provechos
 Dexad los particulares :
 Pues vos fizo dios Pilares
 De tan riquissimós techos,
 Estad firmes, y derechos.

This famous city, once the seat of empire, where the arts and sciences, where trade and manufactures flourished, is now brought to ruin and decay, and kept in existence only by the church. This city, which contained two hundred thousand souls, is now reduced to twenty-five thousand. The inhabitants are fled; the monks remain.

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Here we find twenty-six parish churches, thirty-eight convents, seventeen hospitals, four colleges, twelve chapels, and nineteen hermitages, the monuments of its former opulence. Every street retains some token to remind the inhabitants of what their city was. They see many thousand columns scattered about, each with "Sic tranfit" deeply engraved upon it.

The same desolation has spread to the surrounding villages, which are not only reduced in number, from five hundred and fifty-one to three hundred and forty-nine, being a loss of more than two hundred villages in one district, but the remaining villages are also reduced to less than one quarter of their former population, and the devastation extends so far that some of the most fertile lands are left uncultivated. This I can venture to affirm upon the best authority.

Two hundred and twenty years before the Christian era, Hannibal added Toledo, with Castille, to the empire of Carthage. From them it passed under the dominion of the Romans, and continued in subjection till the reign of Eurico, the seventh

sovereign of the Gothic line in Spain, who took possession of this city about A. D. 467. In that line the sceptre had continued more than 240 years, when the Moors entered Spain, encouraged by the weakness of a country, which, through the jealousy of wicked sovereigns, had been disarmed, and made an easy prey to the first who should invade it. In three years they overran the whole kingdom, and Toledo, although better prepared than most other cities to make a vigorous resistance, submitted to its fate, A. D. 714. Alfonso VI. a warlike prince, with the assistance of Rodrigo Diaz, surnamed the Cid, rescued this city from the Moors A. D. 1085; but in less than fifteen years he lost the famous battle of the Seven Counts, and with it the city. From this time to the final expulsion of the Moors, Toledo was the object for which most blood was shed; and even after that period, it had little time to breathe before it was vexed by new storms.

The loss of two able sovereigns, of Isabella, A. D. 1504, and of Ferdinand, A. D. 1516, with the total incapacity of their daughter Joanna, and the foreign educa-
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tion of their grandson Charles, but more especially the disgrace and death of Ximenes, convulsed the Spanish empire in its whole extent. This distinguished minister, like Richlieu in France, and Henry VII. in England, had curbed the power of the great feudal lords, had divested them of their usurped authority, and, in the place of the anarchy and confusion of distracted empire, was preparing to introduce a system of wise and equitable government, which at once should give stability to the throne, and protection to the weak from the oppression of the strong. By his advice, immediately after the conquest of Granada, Ferdinand, and Isabella had applied themselves seriously to this important business, revoking the grants of cities, castles, lands, pensions, and immunities, which had been extorted from the crown, encouraging appeals from the tribunals of the barons, and attaching to their own persons, by a papal grant, the three great masterships of Calatrava, Alcantara, and St. Iago, with all their cities, castles, and strong places, usually given to the nobles. After the death of Ferdinand, Ximenes, appointed regent of Castille,

Castille during the minority of Charles, following up this plan, had courted the free cities, had armed the citizens, and by their means had kept the great nobility in awe; but when he fell, inexperience, weakness, and rapacity taking the reins, ruined all his plans, and soon drove the people to despair. The citizens of Toledo were the first to take up arms, and the last to lay them down. They chose for their general Don John de Padilla, a young nobleman of undaunted courage, but of no experience. All the cities of Castille followed the example of Toledo, and the rebellion, breaking out with violence, was conducted with a rage and fury peculiar to civil insurrections. They neither shewed nor expected pity; but, to the utmost of their power, by the halter, by fire, or by the sword, they destroyed the persons and the property of all who opposed their measures. The ecclesiastics, without hesitation, joined them; but the nobility observed a strict neutrality. The motives by which these several orders in the state were actuated will appear from the requisitions of the *santa junta*, an assembly

sembly composed of deputies from all the cities. The principal were these :

1. The king shall reside in Castille, or appoint a native regent.

2. None but natives shall hold offices in church or state.

5. The representatives of the people in cortes shall be paid by their own constituents, receiving neither place nor pension from the crown, and shall choose their own speaker.

7. The cortes shall be assembled once in three years, to consult on public affairs.

8. The soldiers shall have free quarters only six days, and on a march.

10. The excise duties shall be reduced to what they were at the death of Isabella.

11. All crown grants from that period shall be revoked, and all new offices shall be dissolved.

14. All the privileges of the nobles, prejudicial to the commons, shall be revoked.

15. The government of cities shall not be in the hands of the nobles, nor shall the governors be paid by them.

17. The

17. The lands of the nobles shall be taxed equally with those of the commons.

18. No money shall be sent out of the kingdom, nor shall it be granted by the crown before it has been raised.

20. The mayors shall continue in office only one year, unless the people desire it; and they shall be paid by the treasury, and not either by fines or forfeitures.

22. The goods of the accused shall not escheat till after sentence of condemnation is pronounced.

25. No man shall be compelled to purchase papal indulgences.

By these requisitions it is clear that the commons were ground as between two mill-stones, oppressed both by the crown and by the nobles; but for want of proper leaders they obtained no redress. Sometimes they made application to the throne with the most flattering offers; at other times they solicited the nobles to take part with them against the usurpations of the crown, and held up to them a rod in case of their refusal; but, whether they tried the force of promises to the king, or of threatenings to the nobles, these promises and threat-

threatenings met together in one object, the resumption of the crown lands.

The armies of the commons, every where defeated, were at length dispersed; Padilla was beheaded, and Toledo alone remained obstinate in its resistance, encouraged by the example of Padilla's widow, who not only declared her own resolution not to survive the loss of liberty, but urged them to avoid the eternal reproaches of posterity, by transmitting to their children that freedom which they had received by inheritance from their progenitors.

The conduct and courage of this heroine might yet have retrieved their affairs, had not the court contrived to detach the ecclesiastics from the common cause. Deserted by them, and deceived in their expectations by the nobles, the commons, no longer able to make resistance, and having no alternative, surrendered the city by capitulation to the crown, (A. D. 1522). Thus ended a war which had been carried on with spirit two and twenty months, and thus the nobles in Spain, as in all other countries, rather than give liberty to the people, submitted themselves to receive the yoke.

yoke. The whole nation has suffered by this change in the constitution of their government; but no order in the state has lost so much as the nobility. From being little less than sovereigns, they are slaves, reduced to the lowest state of abasement; mere cyphers, without weight, consideration, influence, or dignity; not like lawful sovereigns, dethroned yet unsubdued, the objects of most generous pity and compassion; but like some contemptible usurper, when degraded and exposed to the derision of the surrounding multitude.

It was not till A. D. 1529, that the university revived, after the expulsion of the Moors. This seminary may be considered as the offspring of Salamanca, and although many distinguished characters have been educated here, the daughter has never been equal in splendour to the mother. They have twenty-four professors, and receive annually about four hundred students. The antiquated philosophy of Aristotle maintains unrivalled empire here.

Before I turned my back upon this most interesting city, I wished to have ascertained a fact which is reported by no con-

temptible authority, but I wanted opportunity.

It is certain that the water of the Tagus at Aranjuez, passing between mountains of gypsum and sal gem, is there very noxious; but at Toledo it is very good, and lathers well with soap. Mr. Bowles affirms, that below Toledo this water discovers no sign, by any chemical process, of either salt or gypsum. In confirmation of a theory which he labours to establish, he relates another fact similar to this. He says, that after rain the river by Cardona (that high mountain of rock salt already mentioned) is so impregnated that the fish die; but that three leagues below the mount, neither by evaporation, nor by any other means, could he ever discover the least particle of salt.

These and similar facts, if ascertained, would point out a law of nature with which at present we are wholly unacquainted.

Provisions are remarkably cheap at Toledo: beef, eight quarts; mutton, eleven; bread, five; labour, from September to May, four reales; the remainder of the year, four and an half.

It

It must always be remembered, that eight quarts and an half make a real, which may be reckoned two pence half-penny sterling, but in truth it is not more than $2\frac{2}{3}$ pence.

June 9, I left Toledo. The way from this city to Aranjuez is interesting, as being a country evidently covered with decomposed granite. In one part of the way we find the clay unmixed, but as we proceed, we see the quartz blended with the clay, whilst the mica, as the lighter body, has been carried off. The vegetable tribes are nearly the same with those already mentioned at Anover, with the addition of excellent liquorice growing wild. Near the river side is an extensive wood of tamarisk. This part of the country is chiefly the king's demesne, and is left uncultivated, given up to mules, although the land is rich, and, with proper tillage, would produce the most luxuriant crops. In one spot of low swampy ground is saltpetre in abundance, discernible to the taste, and visible to the eye, although it is far from any dwelling, and free from all distinguishable

admixture of either gypsum or calcareous matter.

As we approach the *Sitio*, that is, the royal residence, we meet with a delightfully shaded road; and, after traversing a scorching plain, feel refreshed by the vapour arising from the water, with which a double row of elms is kept in constant vigour.

Aranjuez, at this season of the year, is a most enchanting residence. The palace is not superb, but it has the look of comfort; and the garden, watered by the Tagus, is beautifully laid out, without the least appearance of affectation, but natural, and suited to the climate, which requires close walks, and, of course, great simplicity; it is extensive, and, by that circumstance, aided by the size of the elms, which are, without exception, the largest I ever saw, it has an air of magnificence, but that kind of magnificence which consults only pleasure. The Cyprian goddess, with her little train, might have chosen this for one of her most favoured spots; but native beauty is here confined to the vegetable kingdom; few of her nymphs are to be found in this part of Spain.

The

The corps diplomatique seem to enjoy themselves more in this retreat than at the other sitios; they are near together; they give good dinners; they have frequent balls; and, from day to day, they have one continued round of pleasant amusements.

In this sequestered spot, we meet with none but men of the most polished manners, well informed of every thing that is passing in the world, and with the most accomplished women, all cheerful, gay, and lively. The refinements of a select society like this were so powerfully attractive, that I laid by the pen, I closed my books, and, from morning to night, had agreeable engagements. I came here with Izquierdo, expecting to have explored the mountains in this vicinity with him; but the moment we left the chaise, we parted; he lived with the ministers, I with the corps diplomatique. A few days after my excursion to Anover, we met; when, like another Mentor, he awakened my attention to the chief object of my journey, saying, "My
 " friend, we must quit this place, and re-
 " turn to the more rugged paths of sci-
 " ence: this kind of life is not suitable to

“ us.” Thinking however some relaxation needful, and finding the society at Aranjuez, although cheerful, not unprofitable, I determined to prolong my stay.

Here I often met one of my travelling companions, the tall French colonel, looking exceedingly dejected; his gloom was manly, yet increasing daily, it seemed at last to border on despair. Part of his eventful history had escaped from him on the journey, the rest I collected from his friends. A Frenchman serving in the Spanish army is sufficient to bespeak misfortune. His was an affair of honour, not uncommon among the officers in France, in which he had killed his colonel. Without loss of time he fled, and, being of a good family, he was strongly recommended to the Spanish court, where, as a brave officer, he met respect. Wherever he served, his conduct was admired, and had he been either discreet or fortunate, he must have risen high in his profession. His person and address were graceful, his understanding strong, and well informed, but for want of prudence, his ambition was sacrificed to his love of pleasure. As a man of gallantry, with such accomplishments, his
 empire

empire must have been extensive; his vanity was flattered; but if he felt attachment, it was for one from whom he had nothing to expect but what the warmest affection could bestow. With her he spent every thing he had, and having exhausted his credit in Barcelona, where his regiment was quartered, he procured an exchange with an officer who was going to Mexico. No sooner was this arrangement unalterably fixed, than his friend and patron, general O' Neile, was appointed governor of Zaragoza, where he would have been soon provided for. This circumstance he felt severely, and this, together with a painful separation, his load of debt, his want of credit, his approaching journey, and long voyage, without money in his purse, or any resources but in his wit, was sufficient to depress the highest and the most independent spirit. Had the duke de Vauguyon known of his distress for cash, he would have offered his assistance; but this man was born to be unfortunate. To complete the whole, he had not been ten days at sea, before news arrived that the viceroy of Mexico, to whom he had the strongest commendations, was dead.

A man may choose his situation, but this once chosen, it is the situation which most frequently makes the man.

Te facimus, fortuna, deam, cæloque locamus.

Soon after my return to Aranjuez, I had the honour to dine with the prime minister, Count Florida Blanca. The company consisted of the foreign ministers, who are invited every Saturday, and his under secretaries. This assemblage may appear incongruous, but it is not so; because these gentlemen, having been well educated, and trained up in the various civil departments of the state, and from thence dispatched into foreign countries as secretaries of the embassy, where they learn the language, and acquire knowledge, they have higher claims than those who have similar employment in the other courts of Europe. When they return to Spain, considered as servants of the public, they are received into the various offices, and have each his several department, one France and England, another the Italian courts, where they assist in expediting business. To them a foreign minister can explain at leisure, with clearness and with freedom,

in

in his own language, all that he wishes to have distinctly stated to the prime minister. From this office they are commonly promoted to some honourable and lucrative employment, as the reward of their long services.

I was struck with the elegance of the dinner, in which there was great variety, yet every thing was excellent; and had I been to form a judgment of the count, merely from the arrangement of his table, I should have pronounced him a man of sense. It is an old, and perhaps a well-founded observation, that no man is fit to govern an empire who cannot give a dinner to his friends.

The manners of the count are easy and polite, such as evidently mark the school in which he has been trained, distinguished not by familiarity but by the most pleasing attentions.

At the beginning of the dinner, I was much surprised to hear myself addressed in English by the favourite servant of the count, who brought me a dish, telling me, “you will find this excellent.” Out of compliment for his civility, I helped myself,

self, but had no sooner began to eat, than he brought me a second; and in like manner a third and fourth. It seems Canosa, for that was his name, had been a Spanish messenger, and having received civilities in England, he was happy to remember them. As long as I continued in Spain, he never lost an opportunity of paying me attention, and of rendering me every service in his power. His good will is courted by the whole corps diplomatique, because he not only can procure for any one an audience, in preference to all others, but can give the best advice as to the time and season of demanding one. It is natural for the foreign ministers to understand this matter; but the *grandées*, proud, haughty, and unbending, wait for admittance, or, wearied with attendance, go away without having been able to obtain it. I saw one of the old nobility sitting thus unnoticed in the antichamber, and I am credibly informed, that whilst they are attending, men of little consideration are instantly admitted to the count, and going away are succeeded by others, who have no greater pretensions than themselves to this distinguished favour.

But

But under a despotic government, the great lords must submit to be treated with contempt. If they will be respected, they must be free; and if they will be free, they must be contented that the people should be so too; because liberty, if not equally extended to every order in the state, must in time be lost. This truth, founded on observation, and confirmed by the experience of all nations, is a truth of all others the least pleasing to the great; a truth, the force of which is seldom felt till it comes too late to be of service.

As soon as dinner was over at the count's, coffee was called for, and every one dispersed. The Spaniards went to their fiesta, and I wandered about till Mr. Liston did me the honour to introduce me at the Dutchess of Berwick's, where a pleasant party constantly assembled to drink tea and sup, when there was no ball, for all the time the court was at Aranjuez, the Dutchess de la Vauguyon gave two a week, and the Dutchess of Berwick one.

At a ball, to which I was invited by the former, I had the happiness to see Madame Mello dance a volero. Her motions were

so

so graceful, that whilst she was dancing she appeared to be the most beautiful woman in the room; but she had no sooner retired to her seat than the delusion vanished.

This dance bears some resemblance to the fandango, at least in sprightliness and elegance; but then it is more correct than that favourite yet most lascivious pantomime. The fandango itself is banished from genteel assemblies, and justly so. As danced by the vulgar, it is most disgusting; as refined in higher life, covered with a most elegant yet transparent veil, it ceases to disgust, and, from that very circumstance, excites those passions in the youthful breast, which wisdom finds it difficult to curb. This dance must certainly come to them by tradition from the Moors. The music of it has such a powerful effect on young and old, that all are prepared for motion the instant the instruments are heard; and, from what I have seen, I could almost persuade myself to receive the extravagant idea of a friend, who, in the warmth of his imagination, supposed, that were it suddenly introduced into a church or into a court of judicature, priests and
people,

people, judges and criminals, the gravest and the gay, would forget all distinctions, and begin to dance.

One night, as I was going to my hotel, on turning a corner, I saw at a little distance a gentleman entering through a window, but not upon the ground floor, whilst his friend, or confidential servant, was on the watch below. Without knowing what I was doing, I ran up towards him; but, upon better recollection, I made off as quick as possible, happy in having escaped the dagger, which my imagination painted as prepared to keep off all intruders.

The motions of the court are nearly uniform from day to day.

Whilst at Aranjuez the king commonly amuses himself with fishing till the middle of the day, when he returns to dine, like every other branch of the royal family, in public. After dinner, follows a short conversation with the foreign ministers, which being finished, they retire to the garden; and he, accompanied by the prince, leaving the palace about three or four in the afternoon, goes twenty or thirty miles to shoot, following his sport as long as he can see.

The two infants, don Gabriel and don Antonio,

Antonio, either for the sake of health, or to keep them out of mischief, are obliged to go a shooting to some other district, and this every day. If they return early enough, they mount their horses, and attend the princesses in their evening ride.

The old fashioned courtiers dine at half after one, immediately on returning from the palace, but the more modern, at two o'clock, and the foreign ministers between that and three.

In the evening, after the *siesta*, the princesses, attended by their guards, the *grandees*, and some of the foreign ministers, enter their coaches, and move slowly on, saluting each other as often as they pass.

By the side of this long extended mall, is a pleasant walk, well filled with company, and in which the princesses occasionally walk. If they are on foot, the whole company follows in their train; when passing in their carriages, all stand still to make their bow; and the cloak, which was flung loosely back, or held up, or tucked under the arm, and the flap, which was cast negligently over the left shoulder, is let fall, and hangs like the undertaker's

dertaker's cloak, when walking at a funeral. It is pleasing to see the genteel young Spaniard in his *capa*, which he throws into a thousand graceful forms, each remarkable for its peculiar ease and elegance, such as no foreigner can imitate; but when he meets a person of superior rank, or when he goes into a church, ease and elegance are banished by decorum, and this *capa*, so much to be admired, degenerates into the stiffness and formality of a cloak.

The Spanish ladies discover the same taste in wearing the *mantilla*, a kind of muslin shawl, covering both the head and shoulders, and serving the various purposes of the hood, of the cloak, and of the veil. No foreigner can ever attain their ease, or elegance, in putting on this simple dress.

In the Spanish women the *mantilla* appears to have no weight. Lighter than air, it seems to supply the place of wings.

One evening, when this public walk was thronged with ladies, many of whom were richly dressed, on the tinkling of a little bell at a distance scarcely to be heard, in one moment all were upon their knees.

Upon

Upon asking a lady what was the matter, she told me, that *his majesty* was passing. Had I enquired of a Frenchman, he would have said, “ *C’est le bon Dieu qui passe.*” Her look pointed me to the spot, where two ladies of fashion, well known, and highly valued by all foreigners who have visited Madrid, had quitted their carriage to the host, which the priests were carrying to some dying christian. Had it been the rainy season, they must have done the same; and had the public walk been even wet and dirty, none would have been excused from kneeling.

The heat, towards the middle of June, became exceedingly troublesome; and, notwithstanding the many allurements of this delightful spot, made me pant for some cool retreat. But, before I quitted a place, to which I might never more return, I determined to explore the environs.

The country is divided into vallies by long chains of gypsum mountains, running nearly east and west, or north-east and south-west. One of these vallies is occupied by the *Calle de la Reyna*, a beautiful plantation of lofty elms more than two miles

miles in length. At the end of this I turned to the right, and climbed the mountains, where the royal deer range unrestrained by either bounds or fear, except when they see the king approaching.

I returned from my walk through the town to see the amphitheatre for the bull feasts, and the new convent which the king's confessor has made him build for the monks of his own order.

Another morning I walked with Mr. Liston to see a *cortijo*, or farm, of some hundred acres, belonging to the king. His majesty has two such near Aranjuez; but this, they say, much exceeds the other. The vines are here all of the choicest kinds. Some idea may be formed of its expected produce, by the dimensions of the cellars, of more than fifteen thousand feet in length, besides other considerable ranges intended to receive the juice of the grapes, flowing in copious streams from two strong presses. The olives, produced here in great abundance, are pressed by conical iron rollers, elevated above the stage or floor, round which they move by two little margins, to

prevent the bruising of the stones. The olives are carefully picked, and are pressed as soon as they are gathered. By this attention, the oil is not inferior to the best of Italy or France.

In Spain they have few presses in proportion to their quantity of olives, and for this reason, as well as to obtain the greater produce, they leave the fruit in heaps till they ferment and rot; hence the oil grows rancid and ill-flavoured; besides, the pressing of the kernels is certainly not advantageous to the oil. The Spanish oil being, for these reasons, inferior in its quality, is consumed chiefly by the natives, either at their tables or in making soap. Where morals are not concerned, it is happy for human nature, that the taste is under the influence of custom, so as by habit to approve and choose what once it loathed and rejected with abhorrence. From this circumstance it is, that the Spaniards are not merely contented, but pleased, with the peculiar flavour of their oil, and prefer it to the purest which ever came from Lucca. This they condemn for its perfect insipidity.

All

All the buildings of this vineyard are upon a superior stile, and are executed, not only in the most substantial manner, but with much taste. Nothing can exceed in beauty the extensive range of arbours, covered entirely with vines, so as at mid-day, under a most scorching sun, to yield a refreshing shade.

In point of economy I fear little can be advanced in favour of these establishments, to say nothing of the immense sums expended and buried in the earth; because, it can never be imagined, that, as a royal vineyard, the wine will ever pay the labourers employed upon it.

This cortijo is inclosed by a parapet wall with palisadoes, and is surrounded by a deer park. The valley itself, not above one mile in width, is bounded to the south by gypsum hills, and to the north by mountains apparently of the same nature. It is watered by a canal from the Tagus.

Beyond this, to the north, is another valley, where the Tajuna flows.

The gypsum of this country is productive of sea salt, and of Epsom salt, both found crystallized, and abounds with nitre,

appearing every where at noon, in white efflorescence on the surface, and before sun-rise in black spots. The gypsum is in horizontal strata. The tamarisk seems to be fond of gypsum: it abounds every where in this neighbourhood, and is peculiarly luxuriant on the borders of the Tagus.

In the vicinity of Aranjuez we see buffaloes yoked in pairs, either ploughing the land, or drawing heavy loads upon the highways.

The Spaniards, when the sun gets high, all retire to their houses, and exclude, as much as possible, the light; but a foreigner can only learn wisdom by his own experience. By wandering all the morning on the mountains, nature with him must sink, and his strength must fail; but returning with a keen appetite, exhausted, he sits down to a table plentifully furnished with whatever is most excellent in its kind, he eats heartily, he drinks freely, he feels his strength recruited, he sleeps profoundly, and, finding his spirits more than commonly elated in the morning when he awakes, he felicitates himself upon the enjoyment

joyment of such health as he never before experienced; but when, good easy man, he thinks full surely that he is wiser than the natives, he is soon convinced of his rashness, and finds, when it is too late, that he has been feeding the flame which is to consume him.

The day before my departure from Aranjuez, I had the satisfaction of seeing a pageant peculiar to this country; it is called the *Parejas*. The prince of Asturias, with his two brothers, the infants don Gabriel and don Antonio, attended by five and forty of the first nobility, all in the ancient Spanish dress, and mounted on high bred Andalusian horses, performed a variety of evolutions to the sound of trumpets and French horns; forming four squadrons, distinguished from each other by the colour of their dresses, which were, red, blue, yellow, and green, they executed this figure dance with great exactness, and made an elegant appearance.

When I left Aranjuez, it was computed that there were collected in it not less than ten thousand souls; but no sooner is the court departed, than it becomes a desert.

Sunday, 18 *June*, in the evening, I returned to Madrid, and the next morning I attended at the bull feast.

The amphitheatre is three hundred and thirty feet diameter, and the arena, two hundred and twenty-five. It is said to contain fifteen thousand spectators; but I doubt the truth of this assertion.

The feast is presided by a magistrate, attended by his two alguazils, to regulate the whole, and to preserve order in the assembly.

At the appointed moment, immediately on a signal from the magistrate, two folding doors fly open, and a bull rushes furiously into the arena; but, upon seeing the assembled multitude, he makes a pause, and looks round, as if seeking some object on which to spend his rage. Opposed to him he sees a *picador*, mounted on his horse, armed with a lance, and coming on to meet him. As they draw near, they stop, then move a few inches, surveying their antagonist with a fixed attention, each in his turn advancing slowly, as if doubtful what part to take; till at length the bull, stooping with his head, and collecting all his

his strength, shuts his eyes, and with impetuosity rushes on his adversary. The picador, calm and recollected, fixing himself firmly in his seat, and holding the lance under his right arm, directs the point of it to the shoulder of the raging animal, and turns him aside; but sometimes he is not able to accomplish this.

One bull rushed upon the lance, and, rising almost upright upon his haunches, broke it to shivers; then with his forehead, as with a battering ram, he smote the picador on the breast, beat him down, and overthrew the horse. Instantly the *chulos*, active young men, with little cloaks or banners, distracted his attention, and gave the horseman an opportunity to escape. When he was retired, a second picador, armed like the former, offered battle to the bull. Flushed with conquest, the furious beast sprung forward, but being with dexterity diverted by the lance, he returned to the charge before the horse could face about, and fixing his horn between the thighs, tossed him in the air, and overthrew the rider. The *chulos* again appeared, and the man escaped, being relieved by

the first picador, who had again entered the arena, mounted on a fresh horse. To this animal the first attack was fatal, for the bull avoiding, by a sudden turn, the lance, pierced the chest, and struck him to the heart.

Sometimes the bull tears open the belly of the horse, the rider is thrown upon his back, and the poor wounded creature runs about with his bowels trailing on the ground. In one morning I saw thirteen horses killed; but sometimes there are many more. These animals have so much spirit, that the rider can make them face the bull, even when they have received their mortal wound.

When the bull, finding his antagonist constantly remounted, will no longer make battle, the *banderilleros*, or *chulos*, are let loose upon him. These are eight young men, each with a bundle of *banderillas*, or little arrows, in his hand, which he is to fix into the neck of the bull; not however attacking him from behind, but meeting him in front. For this purpose they provoke him to attack them, and when he is preparing to take them on his horn, at the
very

very moment that he makes a little stop, and shuts his eyes, they fix their banderillas, and escape. If they cannot bring him to this point, they present the *moleta*, or little scarlet banner, always carried in their left hand, and provoking him to push at that, pass by him. When he turns quick upon them, they place their confidence in flight; and, to amuse him, they let fall their *moleta*. This very often is sufficient; he stops to smell at it, then tramples it under foot; but sometimes with his eyes fixed upon the man who let it fall, he follows with such velocity, that the banderillero can scarcely leap over the fence, before he is overtaken by the bull. I have seen bulls clear this fence almost at the same instant with the man, although it is near six feet high. Beyond this fence there is another, at the distance of about five feet, which is considerably higher, to protect the spectators, who are seated immediately behind it; yet, I have been credibly informed, that bulls have sometimes leaped with such amazing force, as to clear both these fences, and fall among the benches.

When he has made battle for about
twenty

of 600
prints

twenty minutes, his time is come, and he must die. This certainly is the most interesting moment, and affords the best subject for a picture. The matador appears, and silent expectation is visible in every countenance; with the left hand he holds the moleta, in his right hand, the sword. During the combat, he has been studying the character of the bull, and watching all his motions: if this animal was *claro*, that is, impetuous and without disguise, the matador draws nigh with confidence, certain of a speedy victory; but if he was cautious, circumspect, and crafty, if he was cool and recollected, slow in forming his resolutions, but quick in their execution, he is called *obscuro*, and before him even a veteran will tremble. The matador draws nigh, views him with a fixed attention, and endeavours to provoke him, but in vain; or, having provoked him, makes his lunge, but is eluded by the watchful animal, who instantly becomes assailant, and the champion flies; he flies, but he looks back upon the bull, that he may know how to regulate his flight. One of these, called Pepillo, was so active, and possessed such recollection, that

that when pursued, and near the barrier, at the very instant when the furious animal had closed his eyes to toss him, he put his foot between the horns, and with this borrowed motion, cleared the fence, and came down upon his feet.

Whilst I was in Spain, two matadors were killed at Cadiz. They were brothers. The first by some misfortune met his fate; the second, rushing forward with brutal fury, thirsting for revenge, hasty and impetuous, he soon became the victim of his rashness.

If the matador is an adept in his profession, and calm, he contrives to irritate the bull, and the furious animal rushes blindly on the well directed point.

The part first aimed at, is the cerebellum, or that part of the spinal marrow which is contiguous to it, and the sword enters between the vertebræ, or where the last of these is united to the head. With this blow the creature staggers, and, without losing one drop of blood, falls lifeless to the ground. If this stroke is not practicable, the sword is directed to the heart, and death, although speedy, is not quite so sudden.

sudden. Sometimes it happens, even when Costillaris holds the sword, that he has not found the vital part. I saw him bury the weapon up to the very hilt; but, as the point did not penetrate the thorax, it only glanced along the ribs, and after a few minutes, was shaken out by the frantic animal. One day he missed his aim, and the bull received him on his horn; he was tossed twice before he could be delivered, but he was not much hurt; yet his honour had received a stain, till, on measuring the horns, after the animal was dead, he shewed the spectators that the horn by which he suffered, was two inches longer than the other. Upon this discovery, he received loud applause.

It is wonderful that this accident does not often happen, considering the length of the horns, which in some bulls, from point to point, is near five feet. I never saw such horns in England.

When the bull has at any time cleared the arena, he tears up the ground with fury; and when he has killed a horse, if unmolested by the chulos, he tramples indignant on his enemy.

The

The moment the poor creature falls at the feet of the matador, the trumpets sound, and three mules enter to drag him off.

The bull feasts are every week, frequently twice in the week during the summer; and each day six victims suffer in the morning, twelve in the evening.

Formerly they used high bred horses, and lost few of them; but since they have adopted a different system, many are killed at every bull feast. It happened once that sixty horses perished in one day. For these they give, upon the average, only £.3 sterling; whereas the bulls are reckoned at £.8 each. The stated expences are enormous; but I have my accounts from the best authority:

	£.	s.	d.
The alguazils, the guards, and attendants, cost per day, in sterling, - - -	27	15	0
The two matadors in chief -	30	0	0
The two inferior matadors -	14	0	0
The 8 banderilleros, at £.3 each - - - -	24	0	0
The two picadors - - -	27	0	0
If			

If more are required, each
receives for the morning
£.6, for the evening,
£.7 10s.

The mules, drivers, and other
expences - - - 18 12 0

The eighteen bulls, suppose at
£.8 - - - 144 0 0

Suppose 17 horses at £.3 - 51 0 0

£.336 7 0

The priest who attends to administer the
sacrament, receives no pay.

To compensate for this expence, and to
yield a balance in favour of the general
hospital, to instance only one day, 3 July,
1786, the receipts were as follow:

Collected for the seats, and for

people to sell water - - 605 13 6

Received for the 18 dead bulls 70 4 0

Received for 17 horse skins - 6 14 6

£.682 12 0

The week following the receipts were
more than eleven hundred pounds; but the
average

average may be fairly stated at seven hundred pounds a day, leaving a balance of near four hundred pounds a day for the service of the general hospital at Madrid.

The price of admission differs considerably, according as you are covered or exposed, in the sun or in the shade. A box for the day, which may conveniently accommodate eight or ten people in the shade, will cost £.3 12s; but in the sun, £.1 16s; and between both, £.2 8s. Fashionable people take a box. A seat, if covered, in the shade, and in the front bench, costs 7s. 3d. for the day; but a back seat in these covered benches, on the sunny side of the theatre, is only three shillings. The cheapest seat for the day, exposed to all the inclemencies of the weather, to rain, if it should rain, and to the overwhelming heat of the summer's sun, is something more than 1s. 2d.

The fondness of the Spaniards for this diversion is scarcely to be conceived. Men, women, and children, rich and poor, all give the preference to it beyond all other public spectacles; and, for my own part, I am ready to confess, that the keenest sports-

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man

man can not be less attentive to his own danger, or to the sufferings of the game he is pursuing, than I was to the sufferings of the bull, or to the danger of those by whom he was attacked; nay, so inattentive was I to my own danger, that, although by a shivering I knew that I was taking cold, I had not resolution to retire.

My cold was attended by an ague, and this again was followed by an ulcerated throat. However, by the aid of don Antonio Gimbernat, an able surgeon, and most amiable man, I got through it, and, at the end of a month, was well enough recovered to leave Madrid, where the scorching sun became insupportable.

The contrivances to moderate the heat, are excellent: they have mats and canvases on the outside of their windows to exclude the sun, and during the day they keep the shutters closed, so as to admit the smallest quantity of light, having previously, before the rising of the sun, admitted a supply of fresh air sufficient for the day, and sprinkled the whole house with water.

By these means their rooms, if not frequented, are kept cool and fresh during the
most

most suffocating and scorching heat of summer, even at Madrid. In one of these they sit all the morning; in one they dine, and this commonly is the worst apartment in the house; in one they sleep their *siesta* after dinner; and, in the best, the company assembles for the evening.

The freshness of these apartments has made me often think that discomforts and inconveniences, if decidedly intolerable, are much to be preferred to those, to which patience and moderation may be reconciled: because, when by necessity men are roused to action, there are few evils for which they can not find a remedy, and few difficulties which they can not surmount.

By these contrivances, and by keeping within doors, the day passes pleasantly away. This however is not all that a traveller requires. If he will gain information, he must not stay at home. With this idea, I hastened my departure from Madrid, and soon made a party for the north of Spain, taking for my companion, my amiable young friend, the cadet with whom I had travelled from Barcelona to Madrid. As I was to visit his native province, I took no

letters, but a few from count Campomanes, who likewise was from that part of Spain. Had I made application, I might have had many more; but these I thought would be sufficient; and so I found them.

Before I left Madrid, I enquired the price of provisions, which I found to be as follows: beef, fourteen quarts (which is a fraction under four pence) per pound; mutton, fifteen quarts, which is a fraction more than four pence; veal, thirteen quarts; pork, twenty quarts; cheese, twenty; bread, $6\frac{1}{2}$ quarts, for the finest at the king's oven, and $3\frac{1}{2}$ for brown bread, at the common ovens. Here it may be remembered that $8\frac{1}{2}$ quarts make a real vellon, which is equal to $2\frac{2}{3}\frac{5}{4}$ penny English. Wine is eight quarts for a quartillo, which is something more than a pint, or $1\frac{1}{17}$ pound weight. Labour is five reales, or one shilling, a day.

J O U R N E Y

F R O M

MADRID TO THE ASTURIAS.

ON Saturday, July 22, 1786, my young friend, with the agent of his family, and myself, set out in two little chaises, leaving Madrid soon after midnight, to avoid the heats, which are intolerable in the middle of the day. By this arrangement we escaped one evil to fall into a greater, for which we were not well prepared; because, the chaises being open, the night intensely cold, and the north wind in front, it was difficult to preserve the vital heat till the rising of the sun.

Before eight in the morning, we advanced five leagues over a level country, covered with granite sand, and having reached the mountains, consisting of friable

white granite, we came to Galapagar, two leagues beyond the Guadarrama.

From hence we saw before us a second chain of mountains, covered with snow, and in them discovered the source of that chilling blast which had made us shiver in the night.

The whole country was alive; all were busily employed in bringing home their harvest. The waggons are drawn by oxen, and the wheels are shod with wood instead of iron. It is surprising to see what heavy loads two oxen will draw, pushing with their foreheads against a cross beam fastened to their horns.

The country is open, and badly wooded, although both elm and ash shew the most luxuriant growth.

At the end of about seven leagues, or ten hours journey from Madrid, we begin to ascend the chain of mountains separating New from Old Castile; and in two leagues more, having passed the Puerto de Guadarrama, find a good venta on the northern declivity of these granite mountains. In this venta we meet with comfortable beds; and, to prevent disputes, the price of every thing

thing is fixed by government. A turkey is eight reales, or about 1s. 7d.; a pullet, six reales; a young fowl, three reales and seventeen maravedis, or about ten pence half-penny; nothing can be more reasonable; but the misfortune is, they are seldom, if ever, to be had. However we had no reason to complain.

Soon after midnight we arose, took our chocolate, and proceeded on our journey. The pleasanter meal we made was our breakfast, on cold ham, which we took with a keen appetite under the first shade we found after the sun was up.

The country we passed over is little susceptible of culture, being chiefly either white granite decomposed, or the hard grey granite, resisting all the powerful solvents which nature can employ, and remaining rugged, without the least sign of vegetation. Yet, in the midst of this wide waste, are some fertile spots, either covered with ilex, or broken by the plough; and even some extensive downs.

This morning we travelled three leagues, to Villacastin, and there reposed all the middle of the day.

This village contains two hundred and eighty houses, and sixteen hundred inhabitants. It has only two convents ; one for men, the other for women. Here are two hospitals for the sick, and for the travelling poor : this circumstance may account for the great proportion of funerals, being about fifty in the year, whereas the births do not exceed forty. This village has one parish church, and four chapels, standing, besides five more fallen to decay. Here we see two extensive buildings for shearing the Merino flocks. For want of streams, their corn is ground by wind-mills.

In this place we loaded our pistols, being to pass through a forest, famous for robbers, and marked with monumental crosses. Unfortunately, my driver took the lead, and left the other carriage out of sight. We had ascended the mountain, and were got into the thickest of the forest, when at a distance, to the right, I saw two fellows with muskets crossing with hasty steps to meet us ; they soon came up to us, and the driver stopped. These were two beggars, who exacted money from all passengers,
under

under pretence of having protected them from thieves. The account they gave of themselves was, that they were of a family which had been commissioned by Philip V. to guard this dangerous pass; yet, surely if employed by government, they should wear some uniform, or at least have some badge to distinguish them from robbers.

This forest is of ilex.

At seven in the evening we arrived at San Chidrian, having this day travelled seven Spanish leagues, or, as I imagine, more than five and thirty miles.

In all this country the white wine is excellent, not so sweet and spicy as that of Foncarral, near Madrid, but equally delicate in its flavour.

From San Chidrian we traversed a vast plain of granite sand, very coarse, loose, and unprofitable, although it would evidently bear good elm and fir. Wherever this sand will pay for tillage, they make it yield wheat and barley. They are now reaping; and as fast as they reap, they tread out the grain with mules, horses, oxen, and the *trillo*.

The *trillo* is made with planks of about

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three

three inches in thickness, and is five feet long, by $2\frac{1}{2}$ feet wide; the under surface is studded with gun flints, to the number of about two hundred, for the purpose of cutting all the straw to chaff, and disengaging all the grain. The person who drives the horse, ox, or mule, round the floor, either sits or stands upon the *trillo*, and the operation is called *trillar*.

When the corn is cleansed by the wind, it is immediately put into the granaries, without fear of its heating there, because, when it is reaped it is as dry as shot, and the country is far from being damp.

The general colour affected by the peasants in this province, as in many other parts of Europe, more especially in Wales, is brown, but the genteel people are fond of black.

Having passed the villages of *Adanaro*, *Hontoria*, and *Gutierre-Munoz*, we arrived about nine in the morning at *Aribalo*, a considerable city, with eight parish churches, besides one in the suburbs, eight convents, two hospitals, two royal granaries, forty-two priests, and sixteen hundred houses.

From hence we passed over a plain of
granite

granite sand, and crossing the river *Adaja*, which runs north into the Duero, we came through vineyards to *Ataquines*.

Even in the most desolate part of this route, a plantation of firs, and one majestic elm, shew what the country can produce.

Ataquines is a miserable city, and might be easily mistaken for a village. The cottages are low, and badly built of brick, with sheds before them; they are in number two hundred and seventy, to lodge eight hundred people. The births, on the average, are forty-five; and the burials, twenty, of which most are children in the small pox. Here are four priests. It is remarkable that they have eight hundred oxen. Bread is sold at four quarts the pound of sixteen ounces; beef, eight quarts, or two pence farthing English; mutton they have none; wine is about one penny the quart. The church is built of brick, supported by granite pillars, and is lighted by massive silver lamps. The gold and silver of Peru and Mexico found their way into this city, but, for want of taste, this unexpected display of wealth excites nothing but disgust.

This country, with industry, good government,

vernment, and a market for its commodities, might be rendered one of the richest in the world. It stretches, without mountains, far as the eye can reach; it abounds with rivers, and it enjoys the sun; yet, with all these advantages, the farmers, for want of watering their crops, get only ten for one upon the seed. Their plough is antiquated, like that last described. Here flocks of sheep abound.

This morning we traversed the plain three leagues, to *Medina del Campo*, on the Zapardiel, a little river communicating with the Duero, between Toro and Tordefillas.

Medina has nine parish churches, seventy priests, seventeen convents, two hospitals, and at present only one thousand houses. The collegiate church, built of brick, is much and deservedly admired for its roof. This city seems evidently going to decay. The houses are all of brick, irregular, and low. It was formerly the residence of kings, and contained fourteen thousand families. It is evident that elms, poplars, mulberries, vines, and olives, if planted, would flourish here.

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From hence we turned to *Valdestillas*, four leagues, over a most beautiful country abounding with corn and wine, not hilly, but gently swelling; all open, and destitute of trees, yet able to bear the most lofty elms. The soil is still granite sand, mixed with smooth round gravel, such as may be well expected near the conflux of so many rivers here assembling from three points of the compass, from the east, from the north, and from the south.

Valladolid was fixed upon as our resting place in the middle of our journey, and I was not displeased with the arrangement, because this venerable city is highly interesting to a traveller.

Here I was so happy as to meet the marquis de Mos, a nobleman of Galicia, grandee of Spain, and colonel in the army, who had done me the honour to notice me at court, and now took me under his protection. He had taken a house here only for the sake of being present to prosecute a suit in chancery.

Valladolid is a considerable city, having an university, colleges, cathedral, palace, courts of justice, and one of the two high courts
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of chancery. Upon passing the first gate, you find a spacious area, bounded by seventeen convents; from hence, entering through the second gate, the city strikes you with every appearance of antiquity. The Plaza Mayor, or great square, is spacious and venerable; yet, compared with the great body of the city, it is evidently modern. The cathedral, built by Juan de Herrera, is massive, heavy, and, in my mind, far from elegant; it has the Grecian arch, and the pillars in front are Doric. The treasures of this church are great; the *Custodia*, by Juan de Arfe, is of solid silver, and more than six feet high; the other ornaments and jewels are innumerable, and the whole together is inestimable; yet the bishop has not more than five thousand pounds a year. This city has fifteen parish churches, with five annexed, forty-six convents, two hundred and twenty-seven priests, six hospitals for the sick, for infants, and for lunatics, five thousand families, and twenty thousand souls.

The university has more than two thousand students, forty-two professors, and fifty doctors, distributed in seven colleges. In
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the year 1346, this seminary was instituted by D. Alonzo XI.; and A. D. 1784 to 1785, there entered and were matriculated, 1299 students.

The church and convent of St. Benito are worthy of attention; but the public edifice, in my opinion, most to be admired, is the church of San Pablo, near the palace, whether we consider the elegance of the whole, or the high finishing of the basso relievo figures and ornaments, which, after a lapse of three hundred years, seem to have suffered little by their exposure to the weather. In this building the quadrangle of the novices deserves the highest praise.

The king's palace, rather elegant than grand, is still preserved; but all the palaces of the great nobility are going to decay.

Here Charles V. received the news, that his victorious troops had taken Rome, and made the pope his prisoner; and from hence he ordered prayers to be offered up in all the churches of Spain for the deliverance of the sovereign pontiff. In this city his successors kept their court, till Philip IV. removed it to Madrid.

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The buildings are chiefly brick, but some are of limestone. Among the materials, no inconsiderable quantity of granite, brought from the neighbourhood of Villacastin, at the distance of thirteen leagues, with many hundred pillars of the same, remain as monuments of ancient splendour.

All the public walks are lined with trees.

The country round this city is a perfect garden, watered by norias. It produces white wine of a good quality, excellent madder, some silk, and a few olives. All these productions will increase, when they shall obtain a vent in foreign markets.

At present the poor are numerous, fed by the convents, and manifest the wretchedness of this once flourishing metropolis.

It is fallen indeed, but on the projected canal we may evidently read, *resurgam*. This undertaking, once regarded like the wild projects of the giants, will, in all probability, and at no distant period, be accomplished, provided Spain has the wisdom not to be engaged in war.

The canal begins at Segovia, sixteen leagues

leagues north of Madrid, and is separated from the southern canal by the chain of mountains which we passed at Guadarama. From Segovia, quitting the Eresma, it crosses the Pisuerga, near Valladolid, at the junction of that river with the Duero, then leaving Palencia, with the Carrion to the right, till it has crossed that river below Herrera, it approaches once more the Pisuerga, and near Herrera, twelve leagues from Reinosa, receiving water from that river in its course, it arrives at Golmir, from whence, in less than a quarter of a league, to Reinosa, there is a fall of a thousand Spanish feet. At Reinosa is the communication with the canal of Arragon, which unites the Mediterranean to the Bay of Biscay; and from Reinosa to the Suanzes, which is three leagues, there is a fall of three thousand feet.

Above Palencia is a branch going westward, through Beceril de Campos, Rio Seco, and Benevente, to Zamora, making this canal of Castille, in its whole extent, one hundred and forty leagues.

They have already completed twenty leagues of it, from Reinosa to Rio Seco;

which, with twenty-four locks, three bridges for aqueducts, and one league and an half of open cast through a high mountain, has cost thirty-eight millions of reales, or three hundred and eighty thousand pounds sterling; and this, supposing the twenty leagues equal to eighty-eight miles, is £.4,318 per mile. For work executed in so complete a manner, this certainly is not extravagant.

To expedite this arduous undertaking, they employ two thousand soldiers, and as many peasants. The former receive three reales a day, besides their usual pay, that is when they work by the day; but they work mostly by the piece. To regulate the prices, they have three tables, 1st, for the quality; 2d, the depth; 3d, the distance; all founded on experiments. The qualities are, 1st, sand; 2d, soft clay; 3d, hard clay; 4th. loose schist; 5th, hard schist, and solid rock; of which, they make three distinctions, viz. such as can be worked, 1st, by the pick and shovel; 2d, by wedges and sledges; 3d, by boring and by blast. This last again is subject to distinctions.

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The canal is nine feet deep, twenty feet wide at bottom, and fifty-six at top.

When this canal is perfected, which may be in less than thirty years, the world, perhaps, will have nothing of the kind to be compared with it, either in point of workmanship, of extent, or of utility. The two first speak for themselves; the last can be obvious only to those who have seen this country. To say nothing of coals, to be carried from the Asturias to the south, and of manufactures which might then be established in Castille, and find a ready market by the Bay of Biscay, the excellent wines of that sandy province, now scarcely paying for cultivation, would not only find a ready sale, but would be in the highest estimation; the oils would fetch their price, both for the table and for soap; and the corn, which in abundant seasons proves the ruin of the farmer, would be a source of opulence, and stimulate his industry to fresh exertions.

For want of such an outlet, provinces designed by nature to rejoice in plenty, and to furnish abundance for exportation, are often reduced to famine, and obliged to purchase

corn from the surrounding nations. Considering such undertakings, and seeing them either languish for want of men and money, or not carried on with a spirit answerable to their vast importance, how natural is it to execrate the madness and folly of mankind, so often engaged in prosecuting unprofitable wars, from motives of covetousness, or from the most idle jealousy and groundless apprehensions; spending those treasures for the molestation and abasement of their neighbours, which might be more profitably employed for their own emolument and exaltation, if expended in agricultural improvements, and the general fomentation of their industry. The whole annual expence of this canal is not equal to the construction of one ship of the line. Nay, we may venture to assert, that the men and money absurdly spent by Spain in the prosecution of the last war, would have finished forty canals equal to that I have been describing. The discussion would be long, but the proof is easy. Money is soon reckoned, if we omit the multiplied calculations needful to estimate its value according to the various channels in which it flows,

flows, and the purposes for which it is employed ; but men are easily overlooked ; yet not one of these who falls in the vigour of his age, can be reckoned, even in the first instance, at less than forty pounds, without taking into consideration the contingent injury in the loss of a subject who might have lived to become the parent of a numerous offspring.

Before I left Valladolid I enquired into the price of provisions. In this city, beef and mutton are twelve quarts the pound of sixteen ounces ; and bread is five quarts ; wine is about a halfpenny the English pint. It must always be remembered, that eight quarts and an half make a real.

I cannot quit this city without making mention of a practice which the marquis de Mos assures me is common in Gallicia. He tells me, that in pleurifies they give the seeds of ivy, bruised, to the quantity of two tea spoonfulls, repeated every eight hours, and that this simple medicine has been found to be infallible. I report it upon his authority, having never since had occasion to prescribe it.

Thursday, *July* 27, we left Valladolid at

five in the morning, and ascending gradually a limestone hill for about half a league, we came to an extensive plain, fertile in corn, but not well cultivated; yet some of the farmers upon this rich loomy soil, this mixture of clay, sand, and calcareous earth, have most luxuriant crops. The thistles are rampant, more than eight feet high. The country is open, and void of trees; excepting near one little convent, which enjoys the extensive shade of a few lofty elms.

Before noon, we came to a village, comprising seventy miserable cottages, called *la Mudarra*, built upon a fine limestone rock. Its situation is healthy; yet these seventy families contain only one hundred and twenty souls.

As we advance along the plain, towards Medina de Rio Seco, at the distance of about seven or eight leagues, the limestone rock becomes more destitute of soil.

Medina de Rio Seco already feels the influence of the canal, for though it still wears the face of misery in its buildings, yet the people seem more alert, and farther removed from that torpid indolence so visible

ble in other villages of Old and New Castille. Trade is increasing, and manufactures begin to flourish, particularly those of serge. It is to be lamented, that the silk ribbon weavers should waste their labour, by not adopting the modern improvement of the loom. The surrounding country abounds with corn and wine, and improves in the cultivation of the olive. All these commodities, with the manufactures, and the easy transport by the canal, have invited merchants to open houses, and to bring new capitals into circulation here.

Medina had formerly seven thousand houses; it has now only twelve hundred; but, as these contain more than eight thousand souls, it is evident that trade is brisk. Here are four convents for men, two for women, three parish churches, with forty priests. The churches are all good; that of S. Maria is elegant, with a lofty roof, highly finished, and supported by well proportioned pillars. In this church the *Custodia* is solid silver, and weighs more than one hundred weight. The church of *St. Francisco* is rich in relics; but this, it must be confessed, is a perishable commodity.

- From hence to *Manfilla*, eleven leagues and an half, the country is all level, open, rich, and productive of both corn and wine; abounding in villages, and occupied by husbandmen. The route we took was through *Cedinos*, *Vecilla*, *Alvires*, *Matallana*, and *Santas Martas*. The former of these includes an hundred mud-wall cottages, and two churches; *Vecilla*, one hundred and sixty such miserable habitations, with two churches, and six priests. This belongs to the Count of Altamira, a grandee of Spain. *Mayorga* has now only six hundred and fifty such cottages; and although formerly it numbered seventeen thousand, no traces of these remain. It is divided into eight parishes, and maintains twenty-four priests. Here are three convents, and one hospital. This town belongs to the young dutchess de Benevente. *Alvires* is wretched; *Matallana*, more so; *Santas Martas*, but little better; and *Manfilla* has no room to boast. All are equally of mud wall, and mouldering away.

The *trillo* is every where at work, some with oxen, others with mules. The plough resembles the last mentioned, and exhibits
a want

a want of intercourse with more enlightened provinces. The cart wheels have neither nave, nor spokes, nor felloes; but are only planks fastened together, and turning with the axis. This usually is eight inches in diameter. About Mansilla the wheels are bound with iron. We still see only oxen in the teams.

Mansilla was once fortified, as may be seen by the round towers still remaining. It contains four hundred families, one convent, and one hermitage. Here the dutch-ess of Alba appoints the magistrates.

From Mansilla the face of the country changes. On crossing the Ezla we find meadows, inclosures, and a variety of trees, chiefly poplars, elms, and walnuts; then passing among hills composed of sand, clay, and gravel, rounded by fluctuating waters, we fall down upon a rich valley, at the head of which stands *Leon*, protected by high mountains from the north.

We went immediately to the house of don Felix Getino, a canon of the cathedral, nearly related to my young friend, where we met with a most hospitable reception.

Leon contains fifteen hundred families, with six thousand one hundred and seventy souls, distributed in thirteen parishes, with four hundred and twenty priests, a cathedral, two royal foundations of S. Isidro and S. Marcos, besides nine convents, with a *Beateria* for nuns who are not subjected to vows, a few hermitages, and some hospitals.

The cathedral is deservedly admired for its lightness and elegance. It is a gothic structure, with a lofty spire, highly finished, not only with basso relievo ornaments, but with open work transmitting light, and beautiful in its kind, resembling the finest point lace or filigree. The windows are all of painted glass. In the sacristy is a silver crucifix, with its canopy supported by four Corinthian pillars, near seven feet high, the whole of silver. The silver mount on which it stands is divided into compartments, each exhibiting some representation of the Passion in basso relievo. The custodia is more than six feet high, made of silver, and elegantly wrought with images. The bishop's revenue is 30,000 ducats, or about £.3,295 sterling, per annum. The

canons are forty, including always the king and the counts of Altamira.

When I came back from viewing the cathedral, I saw clearly that I had done something wrong, because our old canon, who had received me with a smile, now regarded me with horror, and even my young friend looked frightened. The fact was briefly this: having slit my nail, I inadvertently took out my knife, as I was walking, and paired it even. Had I been conscious of what I did, I should never have conceived that they, who spit in their churches without reserve, could have been offended. But before my return, the report had reached the good old man, and made him tremble; yet, upon my solemn declaration that I meant no insult, he became gradually calm, and, after some time, resumed his wonted smile.

The religious house, or, *Casa real de San Isidro*, has sixteen canons regular of St. Augustin. In their church, are deposited the bones of the patron saint, in a large silver urn, and the bodies of all the kings of Leon, from Alfonso IV. surnamed the Monk, to Bermudo III. the last king of
Leon,

Leon, together with the ashes of Ferdinand I. in whom the crowns of Castille and Leon were first united, and who died in the year 1067. Their library contains many valuable manuscripts.

The *Casa real de San Marcos* has a prior and sixteen canons, supported by a revenue of eighty thousand ducats, or about £.8,789, per annum. The front of this religious house merits particular attention by all who visit Leon. Various pieces of sculpture in basso relievo are elegant, and highly finished. Two of these represent the Crucifixion, and the Taking down from the cross. But one of the most striking figures, with respect to design, execution, and expression, is San Jago on horseback.

All the churches in this city, like those of Arragon, are crowded with pillars, and these pillars, nearly hid with most preposterous ornaments, such as vines, cherubs, angels, and birds, which are covered entirely with gold.

Leon, destitute of commerce, is supported by the church. Beggars abound in every street, all fed by the convents, and at the bishop's palace. Here they get their breakfast,

breakfast, there they dine. Besides food, at San Marcos they receive every other day, the men a farthing, the women and children half as much. On this provision they live, they marry, and they perpetuate a miserable race. An *hospicio*, or general work-house, is almost ready to receive them; but should alms continue to be thus distributed, precisely the same number of lazy wretches will in time rise up to occupy the place of those who shall be sent into confinement.

The surrounding country is bold and beautiful, but ill cultivated. It is watered by the Torio and Vernefga, two little streams, which unite below the city. These in summer might be called brooks, in winter they are torrents.

With the rolling stones, hurried down from the mountains by the impetuous raging of these torrents on the sudden melting of the winter's snow, a considerable part of the wall is built; forming a valuable collection for the naturalist, who wishes without labour to investigate the nature of the country. Among these are found limestone, schist, and grit. All these
prove,

prove, by their extraneous fossils, that the hills, from whence they come, were once in a state of dissolution, and covered by the sea. The best marble is brought from Nozedo, Robles, and Lillo. The two first are distant five, the latter eleven leagues from Leon.

All the corn mills of this country have horizontal water wheels.

Butchers meat is nearly half the price which is given at Madrid.

Beef sells for nine quarts the pound, of twenty ounces; which is a fraction under two pence sterling the pound of sixteen ounces.

Mutton, ten quarts ditto.

Bread, four quarts (or $1\frac{1}{8}$ penny) the pound of sixteen ounces; ditto mixed with rye, $2\frac{1}{2}$ quarts, or $\frac{4}{5}\frac{5}{4}$ of a penny ditto.

Labour is three reales, or a small fraction more than seven pence a day; but artisans get double.

Tuesday, 1st *August*, having spent three days with our hospitable canon, we left Leon; my young friend and his attendant mounted on horses sent for him by his father, I on a good hired mule. We were escorted

escorted by some gentlemen who were related to my friend.

Our intention was to sleep at a convent, in a little village five leagues from Leon, called *Terras de las Duenas*. For this purpose we began our journey at four in the afternoon, passing along the valley by the side of the Vernefga, and ascending towards the mountains, yet meeting nothing remarkable but large tumblers of grit or sandstone, till eleven in the evening, when, after riding smartly seven hours, we fell down upon our destined village.

Unfortunately for us, the nuns were gone to bed, and the porter would neither give us admittance, nor assist us with provisions. Having counted upon being, as usual, entertained for money at the convent, we had brought nothing with us; and instead of lively conversation with the lady abbess, who is famed for the sprightly sallies of her wit, instead of good wine, preceded by a good supper, and followed by good beds, we were obliged to retire without any thing to eat or drink but chocolate, to a miserable hovel in the village,
called

called a posada, where we however found two beds.

This adventure, from one circumstance, gave me peculiar pleasure, as thereby I had occasion to admire the generosity of my Spanish friends, who all occupied one bed, and left the other wholly to the stranger.

Early the next morning we took our chocolate, and pursued our journey, winding through the gorges of the mountains, and descending with the Luna, a little river, famous for its trout.

These mountains are of schist, capped with marble.

As we advance, the rocks become more bold, the schist disappears, and the marble rises to the height of three or four hundred feet, often perpendicular, but sometimes overhanging to a considerable extent.

In every little opening of the mountains, wherever a valley spreads wide enough to afford pasture for some cows, we find a village of ten, fifteen, or twenty houses; their numbers always bearing proportion to the quantity of food; and as the human race every where makes strong efforts to increase, we find the inhabitants climbing
the

the steep ascent, to cultivate every spot where the plough can pass.

Here most evidently their numbers must be limited, because their food is so; and were they to establish a community of goods, they must either cast lots who should emigrate, or they must all starve together; unless they chose rather to agree that two only in every family should marry, and when a cottage became vacant, could find means to settle which of the expectants should unite to take possession of it.

This subject will be renewed whenever occasion shall present; but I have chosen thus briefly to discuss it in this place, because it is here confined within narrow limits, and being, like the first elements of every science, easily comprehended, may assist us in pursuing our researches on the extent of population, where its combinations are not quite so obvious.

In these little vallies flocks of goats shew the nature of the adjacent country.

After winding among these bare and rugged mountains nearly five leagues, exposed to a scorching sun, almost suffocated

with heat, weary, and ready to faint for want of air, we came under the shadow of a great rock, which, on account of its reviving freshness, we quitted with reluctance, and called to mind a poetic image, the force of which I had never felt before. The deepness of the shade, its vast extent, the distance from reflected heat, together with that degree of humidity which is needful to absorb and make latent the heat of the surrounding atmosphere, all this, and more than this, we find in one poetic image, "The shadow of a great rock in a weary land."

In more ways than one this rock gave employment to my thoughts. It was a grit or sandstone, remarkable for whiteness and the firmness of its grain. Had it been either schist or limestone, or had I found granite in the vicinity, I should not have been particularly struck with this rock; but upon finding grit, a wish arises in the mind to know from whence it came. That grit originates in decomposed granite I have no doubt; but then near to these mountains I can find no granite. This difficulty is not confined to the rock, under
whose

whose shade these reflections rose up in my mind, it equally occurs in every country, but in no one is more striking than upon the Wiltshire downs, more especially near Aubury and Kennet, in the neighbourhood of Marlborough, where the great rolling stones of grit, called *sarcen* and *greywethers*, cover the chalk to a great extent. Such phenomena will be the subject of a future discussion; but, for the present, it is time to turn our back upon this rock.

About the middle of the day we came to a village called *Truovana*, consisting of twenty-two miserable cottages, belonging to the monks of the *Escorial*. We dined at their farm-house, where bread is provided for their shepherds. The flock consists of twenty-eight thousand sheep, which in the summer feed upon these mountains, but in the winter travel to the south. To tend this flock they employ two hundred shepherds; and for the purpose of feeding these, they have a little mill with an horizontal water-wheel, working day and night, and an oven which is never cold, baking bread

in the morning for the shepherds, and in the evening for their dogs.

The situation of this village is most romantic. It is a plain of no great extent, well wooded, well watered, and shut in by high mountains of marble, whose bare and rugged cliffs form a striking contrast with the rich verdure of the meadows, and of luxuriant crops of corn, whilst the images reflected from the smooth surface of a river, gliding near the village, give a brilliancy and perfection to the whole.

The elm, the ash, the poplar, and wild herberries, appear to be the trees most suited to the soil.

The natural beauties of the place made amends for the coarseness of our fare. Had we proceeded, half a mile, to Villafetano, we should have been not only received with hospitality, but entertained with elegance, by don Ignatio Horenzano, lord of the village.

His habitation is rather neat than magnificent, but the situation is perfectly enchanting; much resembling Truovana, only it is upon a larger scale. It is not possible
to

to see meadows better watered, or richer than those of this delightful vale.

Notwithstanding we had so lately dined, we were compelled to eat some cakes, with sweetmeats, and to drink some wine. When we had finished our refreshment, we found it difficult to get away without taking up our lodging for the night; but, as it was not consistent with our plan to stay, we hastened our departure, and proceeding along a valley, which is no where wider than four hundred yards, and shut in by high mountains, we followed the winding of a river to Piedrafita, where, in the house of don Cortheca Garcia de Atocha, we had no reason to repent our having declined the pressing invitations at Villafetano.

Piedrafita, a little village containing forty-six houses, is fed by a little valley, and surrounded on every side by mountains. The shepherds dogs are large and strong, well qualified to engage the wolves, which are here in great abundance. They wear a spiked collar to protect the neck, and to prevent the wolf from fixing on that mortal part.

It is curious to see the women churning,

as they walk along, or stand chatting with a neighbour, each with a leather bag, in which they shake the cream till the butter is completely formed.

From this village we did not take the direct road to Oviedo, being diverted from the usual route by a work of piety, to be performed in compliance with a vow made by the mother of my friend with her departing breath. This son, her first born, was then at Barcelona with his regiment, but although absent she bound him with a solemn vow, that before he should return into his native province, he should prostrate himself before the altar of *nostra Señora de Carrasconte*, where he should pay four reales for a mass, and give twenty to the poor. To fulfil this intention, we ascended many miles among the mountains, till we reached a little village almost lost in clouds, from whence, having accomplished the fond parent's vow, we returned by the same way, about one league, to find the proper road.

Among these mountains I was exceedingly surprised to see, on the third of August, snow still remaining undissolved, and
not

not far removed from luxuriant crops of corn then fully ripe, and bending to the fickle.

All the dogs in the little villages through which we pass have spiked collars. These are absolutely needful, because wolves abound in these elevated regions. In winter they become ravenous and bold; but even in summer they commit frequent ravages among the flocks by night, if either the shepherd or his dog are sleeping soundly.

The basis of all these mountains is schist, every where covered with limestone, chiefly blue. The rocks are wonderfully rent; the strata are inclined in every possible direction; and the whole country appears to have been convulsed. Sometimes the schist appears elevated above the level of the adjacent mountains, still capped with its limestone; at other times the inferior mountains seem to be all of limestone, yet in the deep ravins they discover schist; but upon none of them do we find the least trace of granite.

At the Puerto de Somiedo, where the

waters part, are a few miserable cottages, which give name to the pass.

From this we descend by a deep ravin, which discovers its native schist, but hurries down from above vast rocks of limestone charged with fossil shells. Here we find ourselves ingulfed as it were to the right and left by stupendous rocks; but where the country opens to the north, we look down upon mountains beyond mountains, to the distance of many miles, and so astonishingly numerous, that the whole bears a perfect resemblance to the ocean when it is vexed with a furious storm. Immediately before us the little village of Gua appears as if ready to be swallowed up and buried by the waves. The impending rocks are magnificent beyond description.

Lower down, at the distance of a mile, is *la Pola de Somiedo*, a village of one and twenty cottages, occupying a small eminence, surrounded by about fourscore acres of well watered meadows, and shut in by limestone rocks of a most stupendous height. Had Shakespeare ever passed this way, his imagination would never have looked towards

Dover

Dover cliff. This village, with its meadows, the little river, and high mountains, either naked and almost perpendicular, or covered with hanging woods, the goats leaping from rock to rock, and the cattle feeding peaceably below, these altogether make a pleasing picture.

I had sufficient time to exercise both my imagination and my pencil, for in this charming village we could get neither bread nor meat, nor eggs nor wine: as for meat and wine, these are delicacies they seldom taste.

The ravin, through which our little river winds its course, alternately widens and contracts, being sometimes not more than two yards across, but, even where it is widest, never more than six hundred feet; sometimes sloping, and leaving a few acres for cultivation; at other times steep, and inaccessible, except to goats; often rugged and bare, but not unfrequently covered thick with a variety of trees, such as oak, ash, beech, filberts, walnuts, chestnuts, and that even where they have no visible soil in which to fix their roots. The rocks themselves are beautiful, more especially when

the smooth white marble is almost hid by foliage. Nearer to the water's edge, plumbs, mulberries, and figs, vary the scene, and mark the vicinity to some little village. The way among these rocks is wild beyond all imagination: sometimes in the bottom and by the river's side, at other times climbing the steep ascent, or descending from the heights, having on one hand a precipice of two or three hundred feet beneath, and on the other impending rocks, which threaten destruction to the traveller. Sometimes the river is pinched in between two rocks, and is out of sight; at other times a man looks down, and catches a glimpse of it sparkling among the branches; but, whether visible or invisible, it is always heard roaring in the bottom. The way being rugged, and so narrow as to admit only of one mule, occasions the apprehension of danger to be often more than a balance for the pleasure which would otherwise arise from these wild and most romantic views.

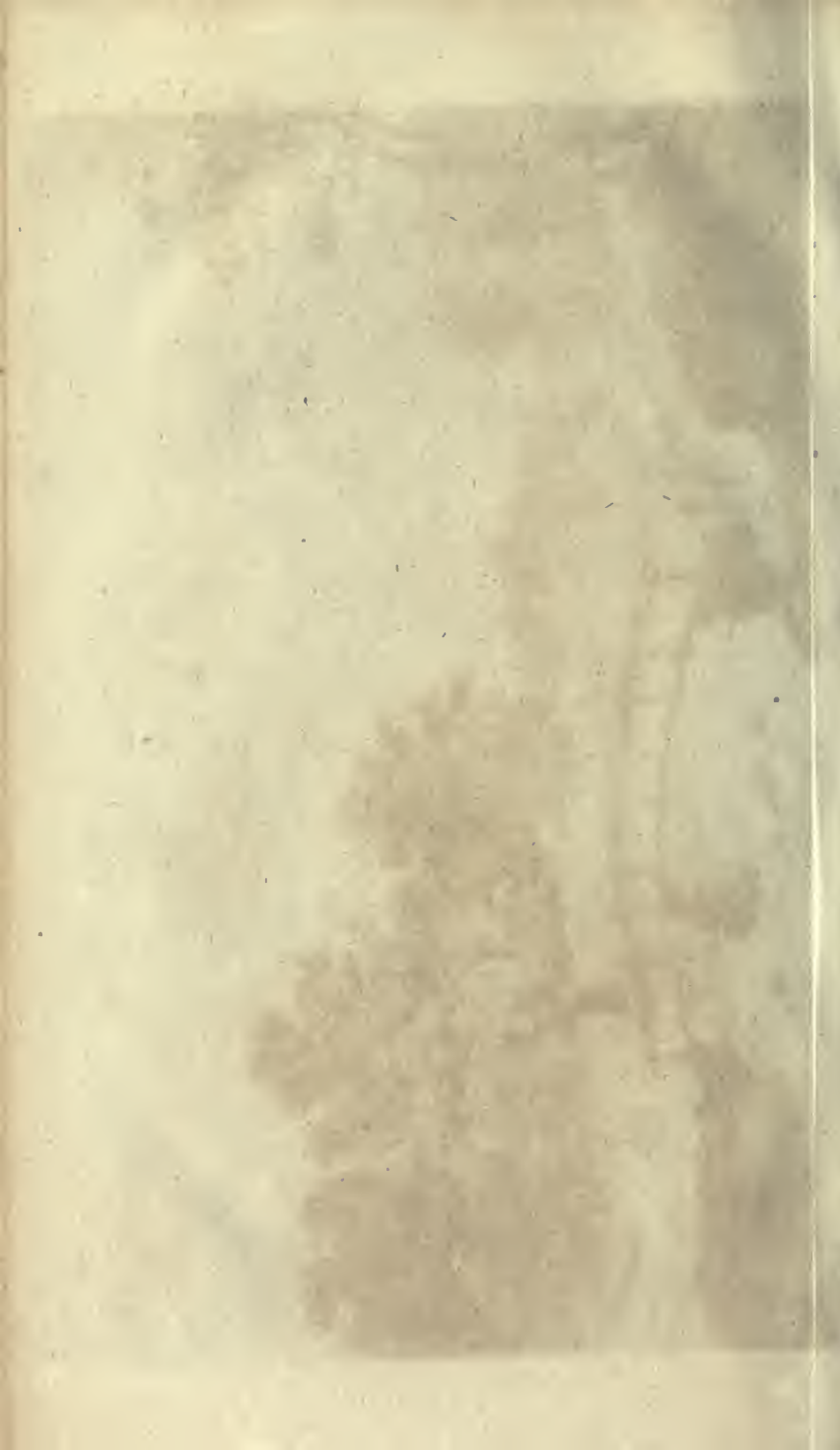
Near the level of the river, at the distance of two leagues from the Pola de Somiedo, the marble is charged with belemnites;



Reverend John Thomas

J. Andrews de Squawam.

Spartan School



nites; but soon after the limestone disappears, being succeeded by the grit, or sandstone, some finely granulated, and almost equal to the Turkey stone for smoothness; other coarse, and evidently composed of fragments, being a species of pudding-stone with both cement and charge silicious.

At the end of four leagues, or a little more than four hours riding, we came to *S. Andres de Aguera*, being still in the same ravin, which here expands, and admits of more extensive villages.

To descend into the Asturias, from the kingdoms of Castille and Leon, there are other passes; but, I apprehend, every one of them is strong.

From this circumstance we may readily conceive, not only why the Moors, who, in three years, had subdued the rest of Spain, could penetrate no further to the north, but why, upon the turning of the tide, the vanquished never failed to make an impression, and to push forward their conquests to the south. The jealousy of two weak and vicious princes had disarmed the nation, and left nothing to resist the impetuosity of

A. D. 700
and 711.

its

its fierce invaders, who, with their light cavalry, scoured all the open country, and displayed their victorious banners on the banks of all the principal rivers in the kingdom. But when they came to this chain of mountains, which, stretching east and west, and separating the north of Galicia, with the Asturias, Biscay, and Guipuscoa, from the rest of Spain, had impeded the progress of nations equally warlike, of the Carthaginians, the Romans, and the Goths, their light horse became absolutely useless, and the Moors were obliged to set bounds to their ambition.

Here they were opposed by the infant don Palayo. On the death of Rodrigo, who was slain in battle before
 A. D. 714. Xeres, not far from Cadiz, this prince had retired to the mountains, and by his valour secured the small remains of a vast empire for his posterity. And here the hardy race was formed, which, in succeeding ages, descended on the degenerate offspring of the Moors, drove them from the plains, and, in process of time, that is, after a contest of seven hundred

*

dred and eighty years, expelled them from every fortrefs in the kingdom.

When we came to *S. Andres de Aguera*, we took up our lodging at the parsonage, where the good *Padre Cura* gave us a most hospitable reception. This living was given him by the bishop of Oviedo, and is reckoned one of the best in his disposal. The parsonage is a tolerable cottage, built and fitted up with little regard to comfort, and less to appearance. Ascending five steps of unhewn stone, you enter a dark vestibule of about three feet square, which leads to the little kitchen on the left, or, if turning to the right, it conducts you to the hall. The former needs no description; the latter is fourteen feet by twelve, with a rough floor, white walls, no ceiling; the furniture is an oak table, and two benches. This hall communicates with the study, a little room of six feet by five; and with the bed chamber, which is six feet square, but this has no window, being placed between the study and the vestibule. Under the study is a cellar, well stored with bags of wine, to which you descend through a trap door of small dimensions. The two maids sleep in
a little

a little bed-room joining to their kitchen, and the assistant priest in a little hovel out of the house, that, if sent for in the night, he may rise without disturbing the good rector.

As soon as we arrived, we had chocolate and biscuits ; at night, some fat fowls, with plenty of good wine, made us amends for our sufferings at noon. The best bed was given to the stranger, and the hospitable priest contrived some how or other to lodge all the rest.

The day following was Friday, and therefore a fast ; but that made no difference to me, for this young priest was so polite and attentive as to provide a fowl. At dinner he gave me occasion to admire his discretion : he wished me to taste the trout, as being the produce of the Luna, a river remarkable for trout ; but the *homme d'affaire* of my young friend pulled away the dish, and said, " He can not eat fish, because he
 " has been eating flesh." " True," said the priest, " we catholics must not touch
 " fish on a fast day, if we have been eating
 " flesh, but your friend is under no such
 " obligation."

This

396¹

This parish contains one hundred and fifty families, consisting of seven hundred communicants, besides children under ten years old, scattered in nine little villages, of which seven are on the mountains, and two in this valley. With so many villages, the occasional duty is exceedingly severe in winter, when the whole country is covered deep with snow. The births are thirty, and the burials twenty-five, upon the average.

A little lower down the valley stands *Aguerina*, where we see the habitation of cardinal Cienfuegos, with the little cottage in which he was born; but no modern cardinal would pass a day in either.

Upon all these mountains the people affect brown cloth, and the women spin with a distaff. Their industry is most striking; not as the offspring of luxury, as in more favoured regions, but as the child of poverty and of severe necessity. Not one accessible spot is left uncultivated, and even the most ungrateful soil is forced to pay some tribute. The higher lands are sown with wheat, the lower lands with Indian corn. The rock here is limestone, and, when burnt, is their principal manure.

In

In this country as much land as a pair of oxen can plough in a day, or about half an acre, is worth one hundred ducats, or £.11 sterling, nearly; and the rent of this they reckon should be one fanega of wheat, or fifty-six pounds of bread, of twenty-four ounces to the pound.

Having nothing else to do, I amused myself with making drawings of Aguera and of Aguerina; after which I went with our good rector to his church, to view the body of S. Fructuoso. It is to this body that thieves and murderers fly for protection from the avenging sword; and should they even reach the porch before they are taken, justice is disarmed, and they may here dwell in safety. The church, indeed, may give them up, but not to death. Such an asylum in the Asturias does little harm, because the inhabitants excel in gentleness and simplicity of manners; but, in other provinces, this privilege is attended with the most fatal consequences.

On the mountains, I am told, are not only wolves, but bears, and a species of the tiger; all which, in the winter, are exceedingly ferocious. From the dread of these,
the

the shepherds constantly drive their flocks, consisting of sheep and goats, into the villages by night; and when they are feeding on the mountains, they are attended by strong dogs with spiked collars.

The price of provisions:

Beef, eight quarts a pound of twenty-four ounces, which is three halfpence for sixteen ounces.

Mutton, ten quarts, or $1\frac{7}{8}$ penny for sixteen ounces.

Bread, five quarts, or $\frac{3}{4}$ penny ditto.

Labour, four reales, or $9\frac{2}{5}$ penny a day.

Saturday, 5 *August*, we left Aguera at four in the morning, and continued to descend three leagues in the same ravin, which might here be called a valley, and by the side of the same rapid stream, which we had traced from its origin near the summit of this vast chain of mountains. At a most romantic spot, called *Belmonte*, we passed over to the east, quitted the ravin, and began crossing all the masures of the country. Here we found nearly the same trees

as

as in the few preceding days; the filbert, chesnut, walnut, and the oak.

Ascending for near an hour, we reached the summit of a mountain, which commands a vast extent of country. This sudden change, after having been so long confined within the precincts of a deep ravin, was like a resurrection from the dead. We began to breathe more freely, and looked round with pleasure to contemplate a new world before us; the little hills clothed with corn, or covered with wood, seemed to rejoice on every side; and the whole country, with its verdure, its inclosures, and its produce, resembled some of the richest parishes of England.

The prevailing rock is limestone; yet we find schist even on the highest of these hills.

About the middle of the day we descended to a circular plain of considerable extent, every where shut in by mountains, and watered by a little stream, on the banks of which, nearly in the centre of the plain, is the village of *Grado*. From hence, after dinner, passing with the river between two
4
high

high rocks, we pursued our way for some time along contracted vallies, then climbing from hill to hill we entered the fertile plain, at the head of which stands the city of Oviedo, and about sun-set arrived at the bishop's palace, the place of our destination.

The expences of this journey were as follow:

A calasine to Valladolid, being thirty-two leagues, or about one hundred and sixty miles, reckoned at five days out, one for rest, and four for return, in all ten days, with fee to the driver, two hundred and eighty-four reales.

Ditto to Leon, for half a calash, one hundred reales.

A mule to Oviedo, five days, and return, one hundred and twenty reales.

Provisions from Madrid to Oviedo, one-third, being my proportion, two hundred and seventy-two reales. The whole expence therefore in sterling was £.7. 14s. 7½d. for a journey, which, if direct, would have been eighty-two leagues, but which, as I suppose, we made more than ninety leagues, or about four hundred and fifty miles, and

in which, as we travelled, we employed fifteen days. The common expence, in this part of Spain, may be reckoned, for a calafine, 5s. 6d. a day, allowing as much for the return, and about five shillings a day for living, not including the califero, who pays for himself.

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